

FCC TEST REPORT

REPORT NO.: RF920702R02

MODEL NO.: SU-1B

RECEIVED: July 02, 2003

TESTED: July 04 ~ Aug. 18, 2002

APPLICANT: Nokia Corporation

ADDRESS: Joensuunkatu 7G, FIN-24100 Salo, Finland

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0528
ILAC MRA



Lab Code: 200102-0

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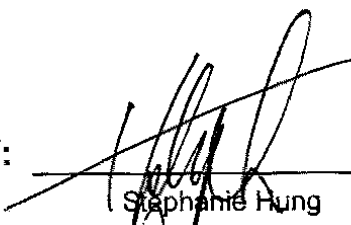
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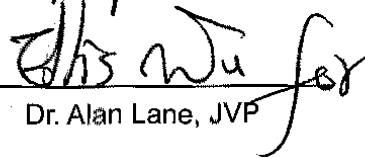
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1 CERTIFICATION

PRODUCT : Bluetooth Digital Pen
BRAND NAME : Nokia
MODEL NO. : SU-1B
TEST ITEM: ENGINEERING SAMPLE
APPLICANT : Nokia Corporation
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from July 04 ~ Aug. 18, 2003. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

PREPARED BY:  , **DATE:** August 20, 2003
Stephanie Hung

APPROVED BY:  **DATE:** August 20, 2003
Dr. Alan Lane, JVP

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -10.24dB at 0.170 MHz
15.247(a)(1)(I)-(ii)	Number of Hopping Frequency Used Spec.: At least 75 channels	PASS	Meet the requirement of limit
15.247(a)(1)(ii)	Dwell Time on Each Channel Spec. : Max. 0.4 second within 30 second	PASS	Meet the requirement of limit
15.247(a)(1)(I)-(ii)	Hopping Channel Separation Spec. : Min. 25 kHz or 20 dB bandwidth	PASS	Meet the requirement of limit
15.247(a)(2)	Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System Spec.: Max. 1 MHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Spec.: max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Transmitter Radiated Emissions Spec.: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -5.70dB at 120.00MHz
15.247(c)	Band Edge Measurement	PASS	Meet the requirement of limit

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Bluetooth Digital Pen
MODEL NO.	SU-1B
POWER SUPPLY	3.7VDC from internal Battery 5.7VDC from external Adapter
MODULATION TYPE	FHSS (GFSK)
FREQUENCY RANGE	2402MHz ~ 2480MHz
NUMBER OF CHANNEL	79
OUTPUT POWER	-2.51dBm
ANTENNA TYPE	F Type Antenna with 0.3dBi gain
USB CABLE	1.20m A-B Type
I/O PORTS	USB port
ASSOCIATED DEVICES	1. USB CABLE 2. USB CRADLE (Type: DT-2) 3. ADAPTER

NOTE:

1. The EUT is specified with a cradle which brand is Nokia and model is DT-2.
2. There are four functions provide power to EUT. One is power by the cigarette lighter form vehicles, others as like below:

Brand:	NOKIA
Model:	LCH-12
Input:	+12V/24V DC
Output:	5.7V, 800mA

Brand:	NOKIA
Model:	ACP-12E
Input:	AC 100-240V ~ 50/60Hz, 180mA
Output:	5.7V, 800mA

Brand:	NOKIA
Model:	ACP-8A
Input:	AC 100-240V ~ 50/60Hz, 120mA
Output:	DC 5.3V, 500mA

3. Bluetooth technology is used for the EUT.
4. For more detailed feature description of the EUT, please refer to user's manual.

3.2 DESCRIPTION OF TEST MODES

TEST MODE	DESCRIPTION	REMARK
1	Pen only	NOTE 1
2	Pen + LCH-12 (car adapter)	
3	Pen + ACP-12E (Adapter)	
4	Pen + ACP-8A (Adapter)	
5	Pen + cradle + PC	NOTE 2
6	Pen + cradle + PC + LCH-12 (car adapter)	
7	Pen + cradle + PC + ACP-12E (Adapter)	
8	Pen + cradle + PC + ACP-8A (Adapter)	

NOTE 1: Using the Nokia Digital Pen with the compatible phone.

NOTE 2: Using the Nokia Digital Pen with a PC.

NOTE 3: According to our customer's request, we describe the version number as below Hardware = version 2.4, Software = version 15a and Mechanical = version 0.4.

For conducted emissions measurement, the test result include test mode 3 ~ test mode 8.

For radiated emission measurement below 1000 MHz, the test result include test mode 1 ~ test mode 8.

For radiation emissions above 1000 MHz, mode 7 the worse case was chosen for final test.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Bluetooth Digital Pen. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 15, Subpart C. (15.247)

ANSI C63.4 : 1992

All tests have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

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.

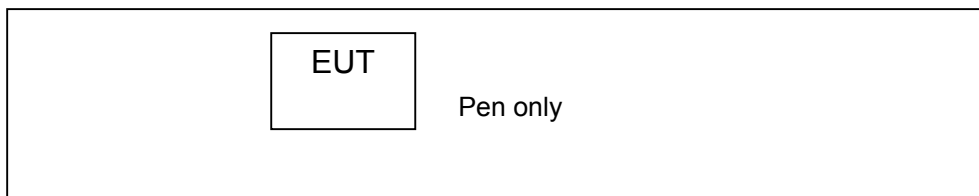
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	INSPIRON 5000e	DS/N TW-054UGW-12961-0CC-0003	NA
2	MODEM	GVC	F-1128V1R6	96-191-113003	DK4F1128VR6
3	PRINTER	HP	2225C+	2813S10112	DSI6XU2225
4	BATTERY	ACDELCO	NA	NA	NA
5	PHONE	Nokia	3650	NA	NA

NO.	1.1.1.1.1 SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
3	1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core.
4	NA
5	NA

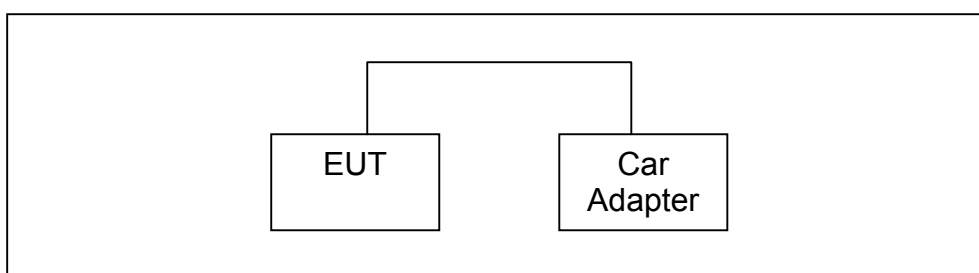
NOTE: All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

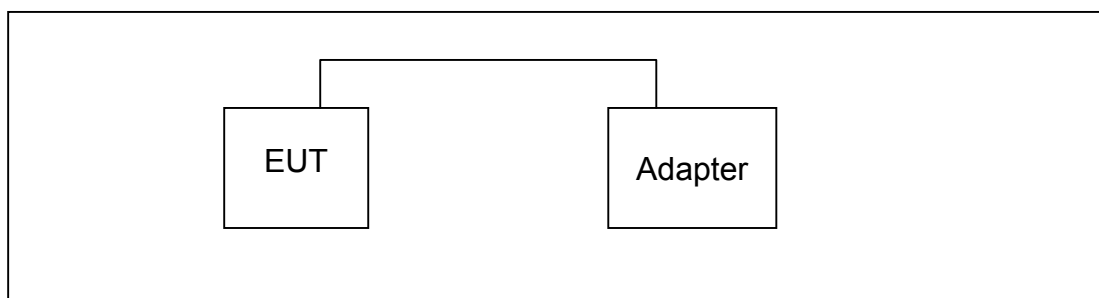
For TEST MODE 1



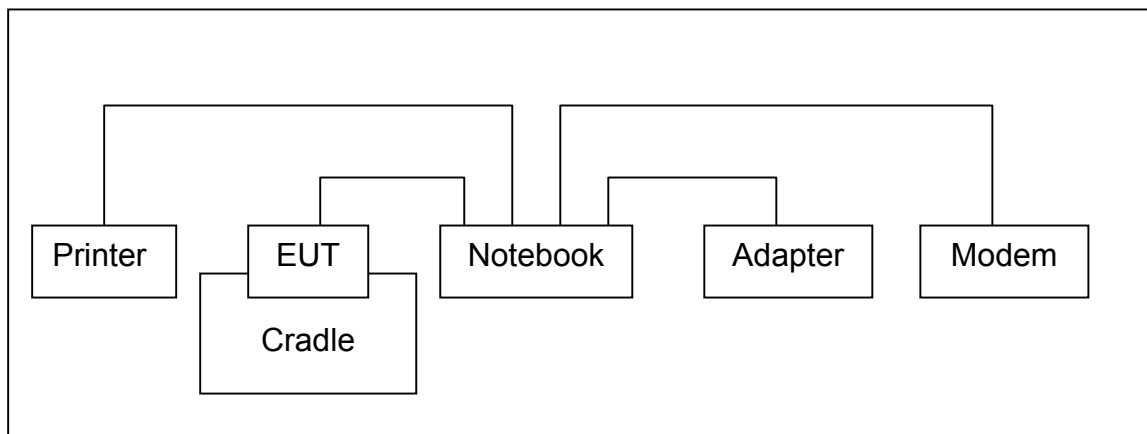
For TEST MODE 2



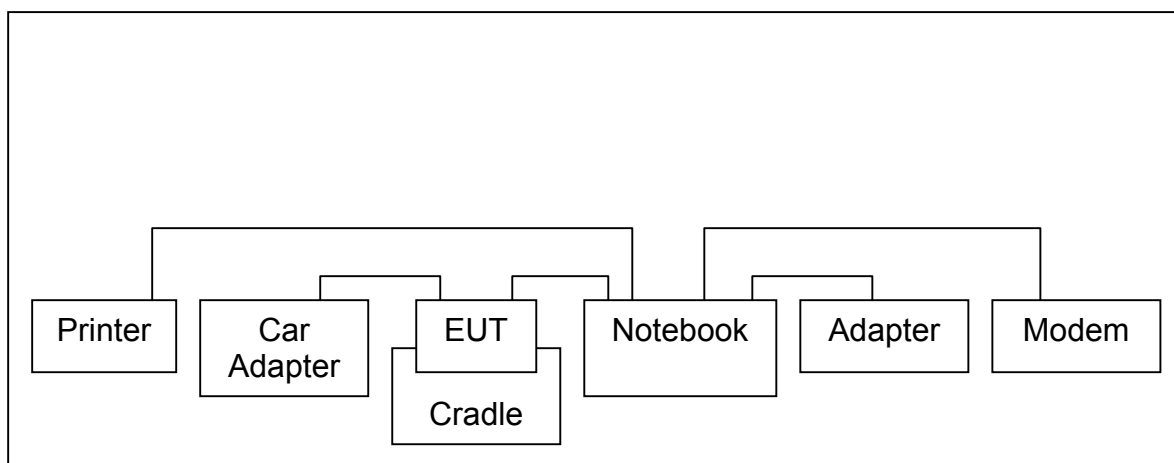
For TEST MODE 3,4



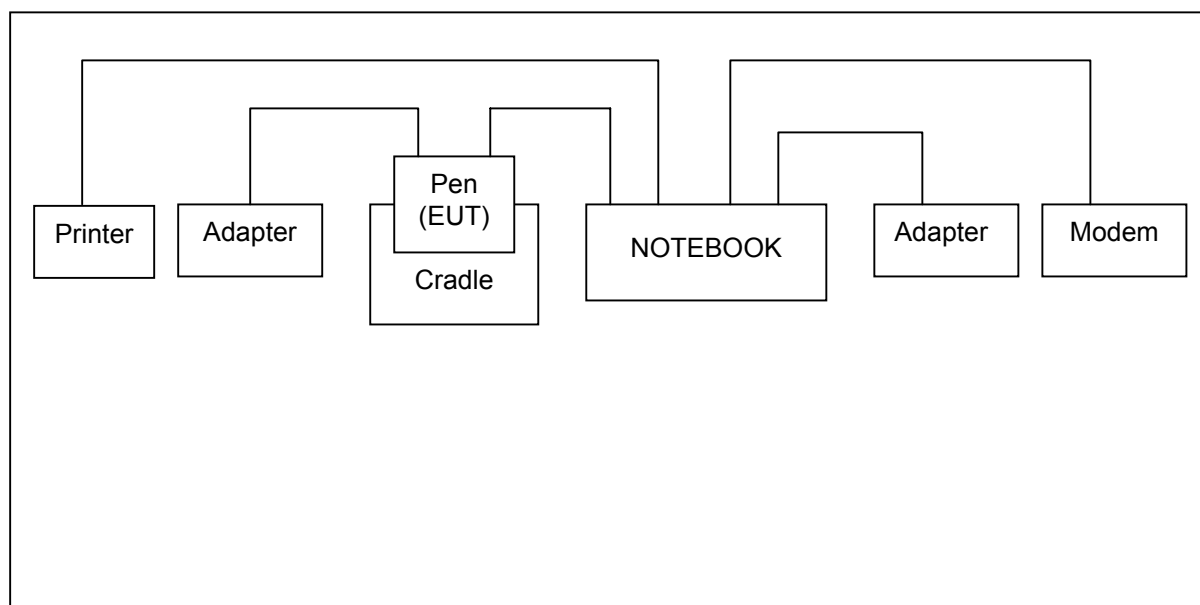
For TEST MODE 5



For TEST MODE 6



For TEST MODE 7,8



4 TEST PROCEDURES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Notes:

1. The lower limit shall apply at the transition frequencies.
1. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS30	834115/016	Mar. 04, 2004
ROHDE & SCHWARZ Artificial Mains Network (For EUT)	ESH2-Z5	892107/003	Jul. 08, 2004
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Nov. 29, 2003
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Nov. 29, 2003
EMCO L.I.S.N. (For peripherals)	3825/2	9504-2359	Jun. 17, 2004
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C03.01	May. 23, 2004
Terminator (For EMCO LISN)	NA	E1-01-300	Feb. 23, 2004
Terminator (For EMCO LISN)	NA	E1-01-301	Feb. 23, 2004

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. "*": These equipment are used for conducted telecom port test only (if tested).
 3. The test was performed in ADT Shielded Room No. 3.
 4. The VCCI Site Registration No. is C-274.



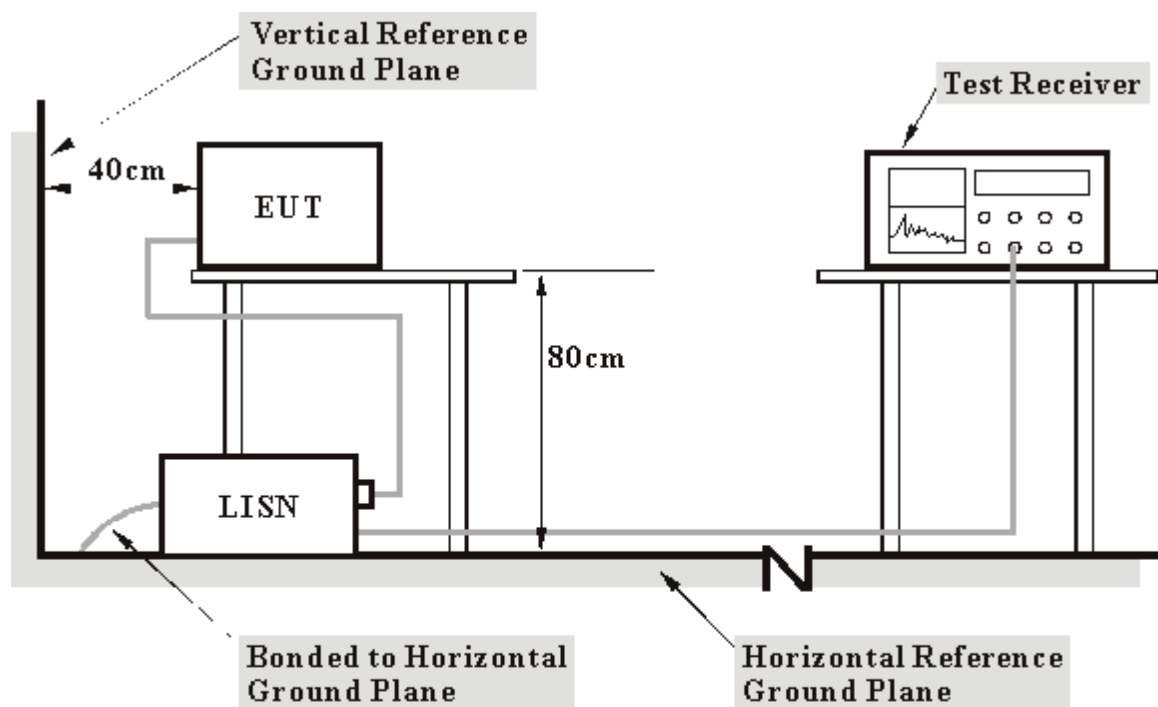
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

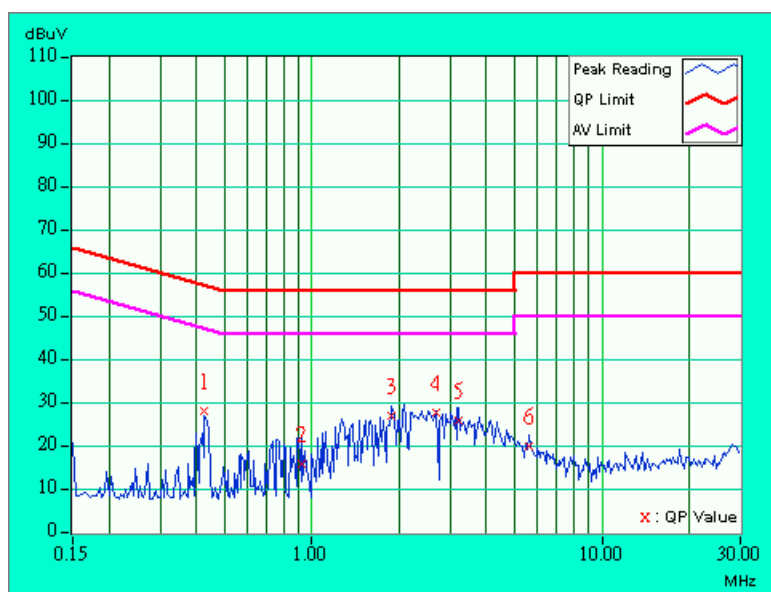
For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 TEST RESULTS (TEST MODE 3)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
CHANNEL	0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.427	0.20	27.75	-	27.95	-	57.30	47.30	-29.35	-
2	0.927	0.29	15.21	-	15.50	-	56.00	46.00	-40.50	-
3	1.884	0.39	26.51	-	26.90	-	56.00	46.00	-29.10	-
4	2.697	0.43	27.26	-	27.69	-	56.00	46.00	-28.31	-
5	3.201	0.46	25.46	-	25.92	-	56.00	46.00	-30.08	-
6	5.599	0.58	19.49	-	20.07	-	60.00	50.00	-39.93	-

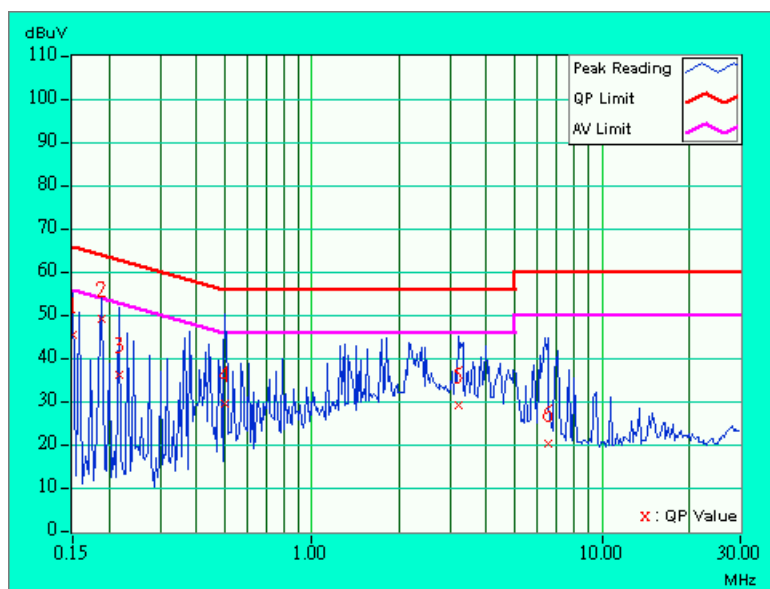
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.15	45.22	-	45.37	-	66.00	56.00	-20.63	-
2	0.189	0.19	48.68	-	48.87	-	64.08	54.08	-15.21	-
3	0.216	0.20	35.99	-	36.19	-	62.96	52.96	-26.77	-
4	0.502	0.22	29.25	-	29.47	-	56.00	46.00	-26.53	-
5	3.224	0.40	28.71	-	29.11	-	56.00	46.00	-26.89	-
6	6.513	0.48	19.76	-	20.24	-	60.00	50.00	-39.76	-

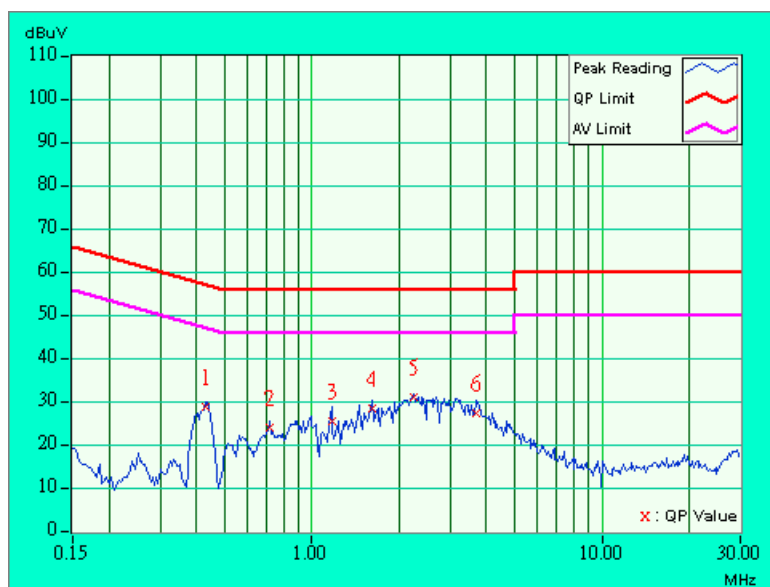
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 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.431	0.21	28.44	-	28.65	-	57.23	47.23	-28.58	-
2	0.720	0.25	23.60	-	23.85	-	56.00	46.00	-32.15	-
3	1.168	0.32	25.03	-	25.35	-	56.00	46.00	-30.65	-
4	1.609	0.36	28.21	-	28.57	-	56.00	46.00	-27.43	-
5	2.234	0.40	30.79	-	31.19	-	56.00	46.00	-24.81	-
6	3.703	0.40	26.93	-	27.33	-	56.00	46.00	-28.67	-

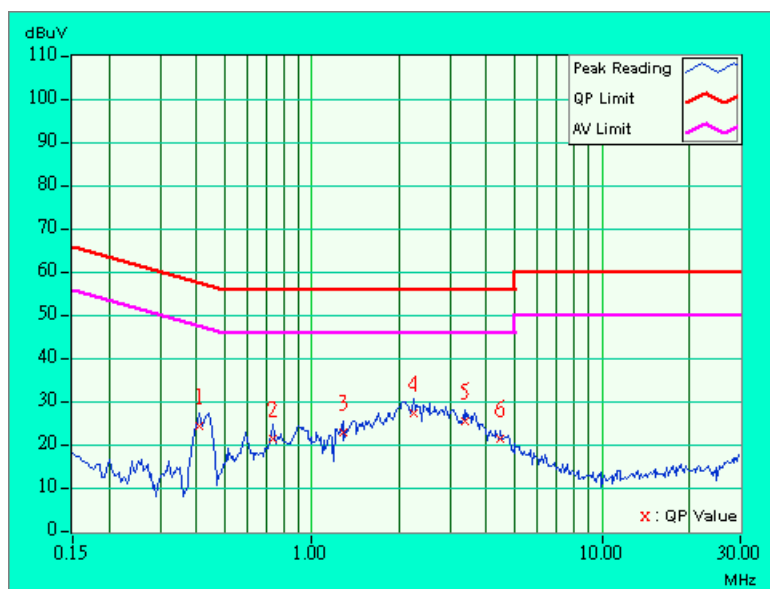
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.408	0.20	24.01	-	24.21	-	57.69	47.69	-33.48	-
2	0.732	0.26	21.09	-	21.35	-	56.00	46.00	-34.65	-
3	1.277	0.33	22.31	-	22.64	-	56.00	46.00	-33.36	-
4	2.250	0.41	26.85	-	27.26	-	56.00	46.00	-28.74	-
5	3.359	0.47	24.91	-	25.38	-	56.00	46.00	-30.62	-
6	4.469	0.52	20.95	-	21.47	-	56.00	46.00	-34.53	-

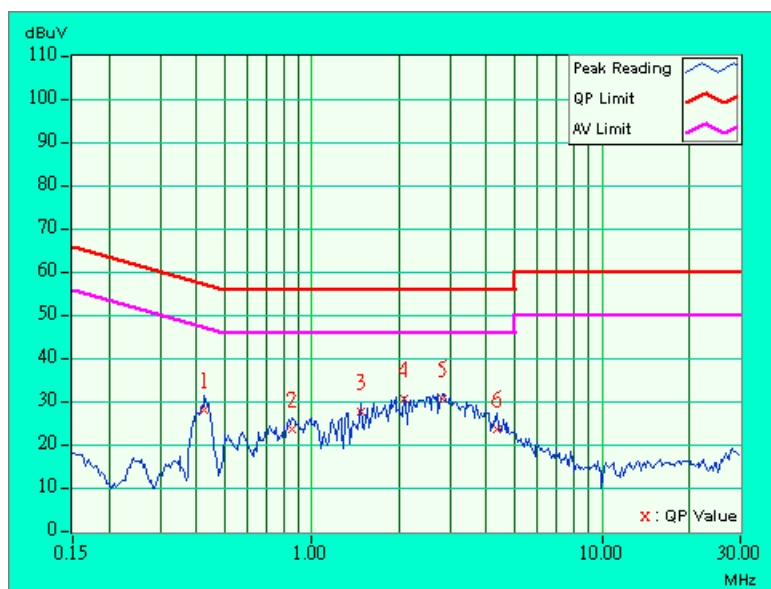
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1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.427	0.20	27.88	-	28.08	-	57.30	47.30	-29.22	-
2	0.857	0.28	23.20	-	23.48	-	56.00	46.00	-32.52	-
3	1.469	0.35	27.34	-	27.69	-	56.00	46.00	-28.31	-
4	2.070	0.40	30.18	-	30.58	-	56.00	46.00	-25.42	-
5	2.813	0.40	30.36	-	30.76	-	56.00	46.00	-25.24	-
6	4.324	0.41	23.40	-	23.81	-	56.00	46.00	-32.19	-

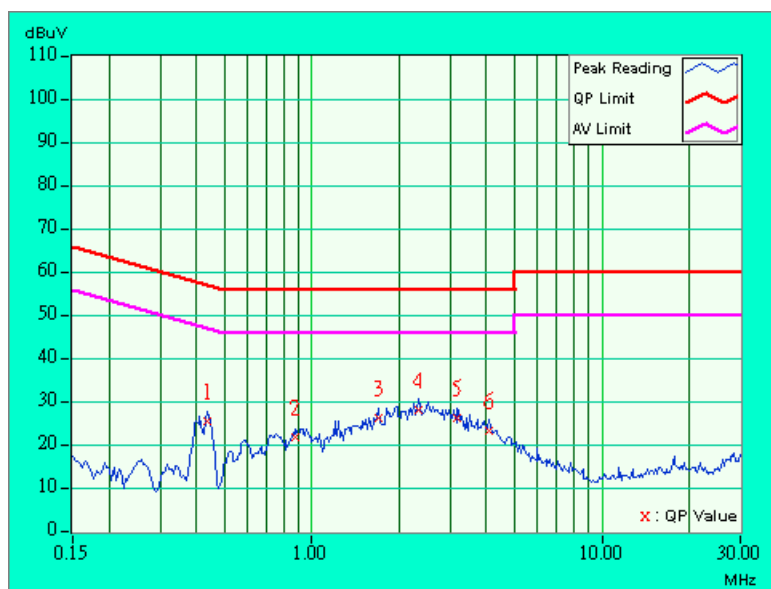
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.435	0.21	25.23	-	25.44	-	57.15	47.15	-31.72	-
2	0.880	0.28	21.43	-	21.71	-	56.00	46.00	-34.29	-
3	1.707	0.37	25.97	-	26.34	-	56.00	46.00	-29.66	-
4	2.340	0.42	27.65	-	28.07	-	56.00	46.00	-27.93	-
5	3.180	0.46	25.87	-	26.33	-	56.00	46.00	-29.67	-
6	4.098	0.50	22.95	-	23.45	-	56.00	46.00	-32.55	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

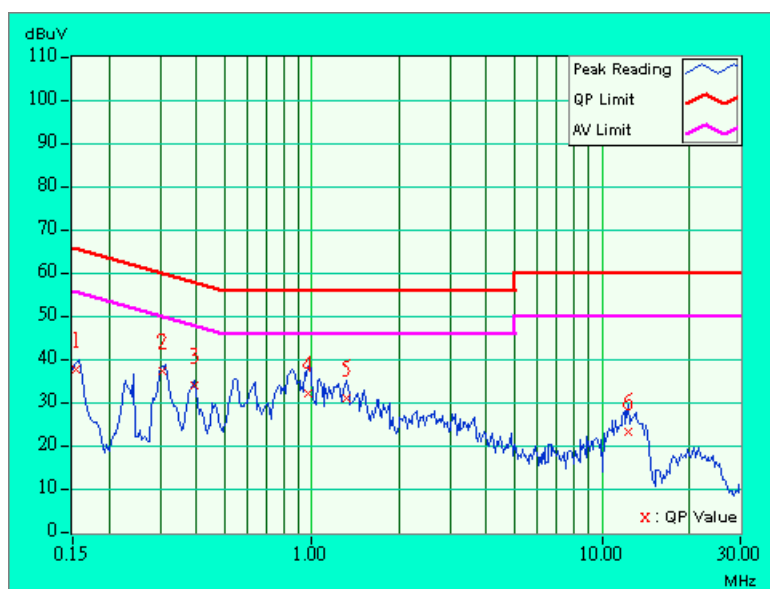


4.1.7 TEST RESULTS (TEST MODE 4)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
CHANNEL	0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.154	0.10	37.21	-	37.31	-	65.79	55.79	-28.48	-
2	0.306	0.15	36.97	-	37.12	-	60.07	50.07	-22.95	-
3	0.392	0.20	33.35	-	33.55	-	58.02	48.02	-24.47	-
4	0.974	0.30	31.59	-	31.89	-	56.00	46.00	-24.11	-
5	1.324	0.33	30.59	-	30.92	-	56.00	46.00	-25.08	-
6	12.277	0.60	22.84	-	23.44	-	60.00	50.00	-36.56	-

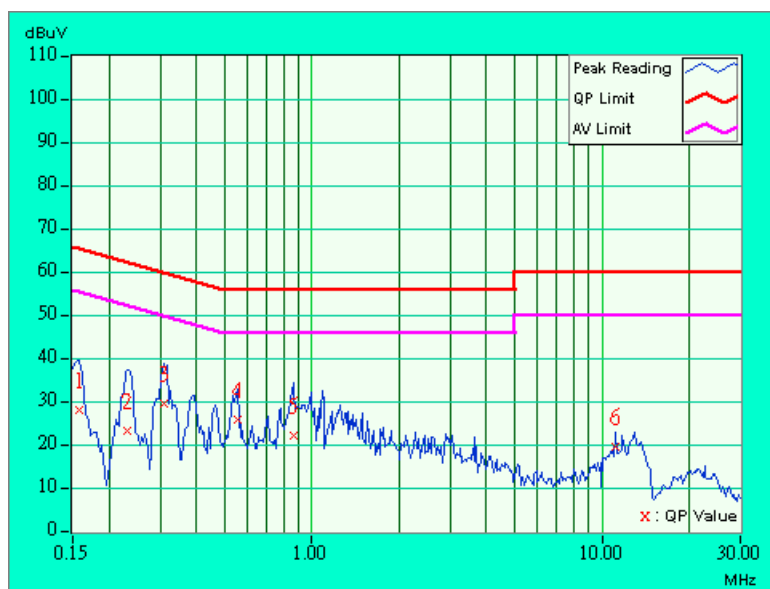
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	27.34	-	27.44	-	65.58	55.58	-38.14	-
2	0.232	0.12	22.43	-	22.55	-	62.38	52.38	-39.83	-
3	0.310	0.16	28.86	-	29.02	-	59.97	49.97	-30.95	-
4	0.552	0.23	25.25	-	25.48	-	56.00	46.00	-30.52	-
5	0.861	0.28	21.62	-	21.90	-	56.00	46.00	-34.10	-
6	11.168	0.72	18.87	-	19.59	-	60.00	50.00	-40.41	-

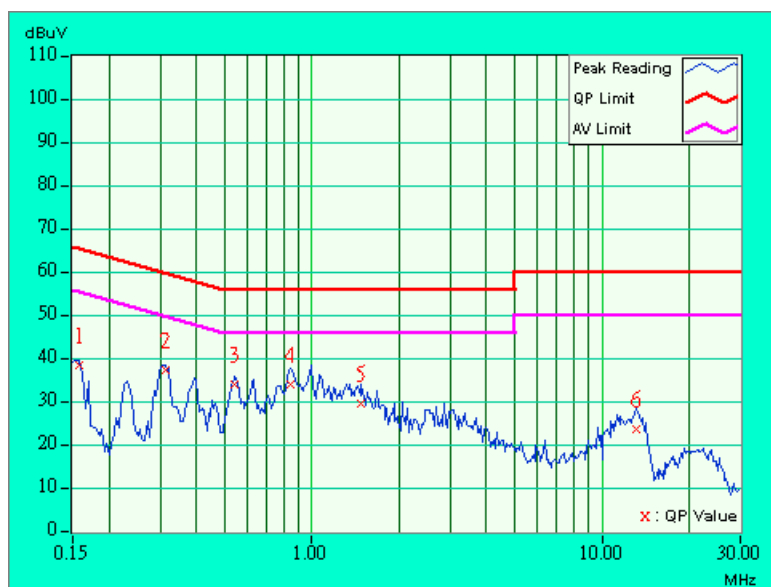
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	38.09	-	38.19	-	65.58	55.58	-27.39	-
2	0.314	0.16	36.85	-	37.01	-	59.86	49.86	-22.86	-
3	0.545	0.22	33.31	-	33.53	-	56.00	46.00	-22.47	-
4	0.841	0.27	33.47	-	33.74	-	56.00	46.00	-22.26	-
5	1.484	0.35	29.18	-	29.53	-	56.00	46.00	-26.47	-
6	13.188	0.60	23.23	-	23.83	-	60.00	50.00	-36.17	-

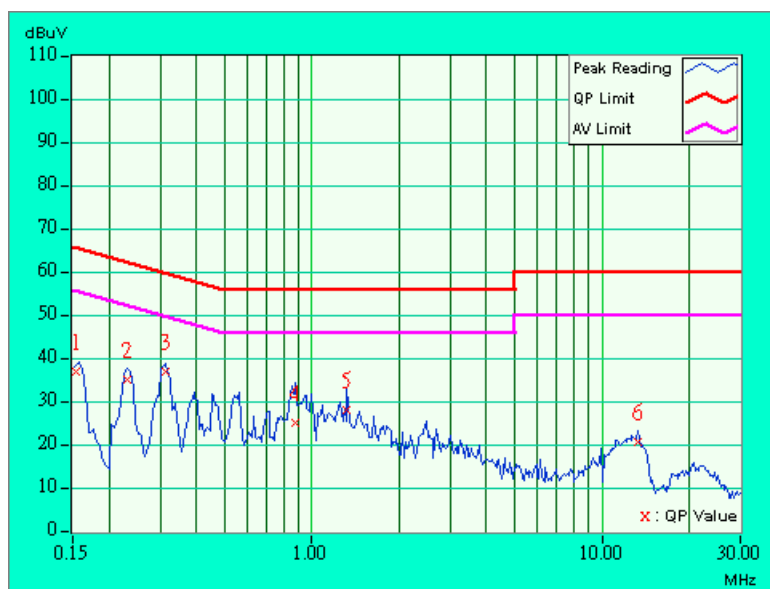
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.154	0.10	36.39	-	36.49	-	65.79	55.79	-29.30	-
2	0.232	0.12	34.53	-	34.65	-	62.38	52.38	-27.73	-
3	0.314	0.16	36.29	-	36.45	-	59.86	49.86	-23.42	-
4	0.877	0.28	24.30	-	24.58	-	56.00	46.00	-31.42	-
5	1.320	0.33	27.55	-	27.88	-	56.00	46.00	-28.12	-
6	13.313	0.77	20.11	-	20.88	-	60.00	50.00	-39.12	-

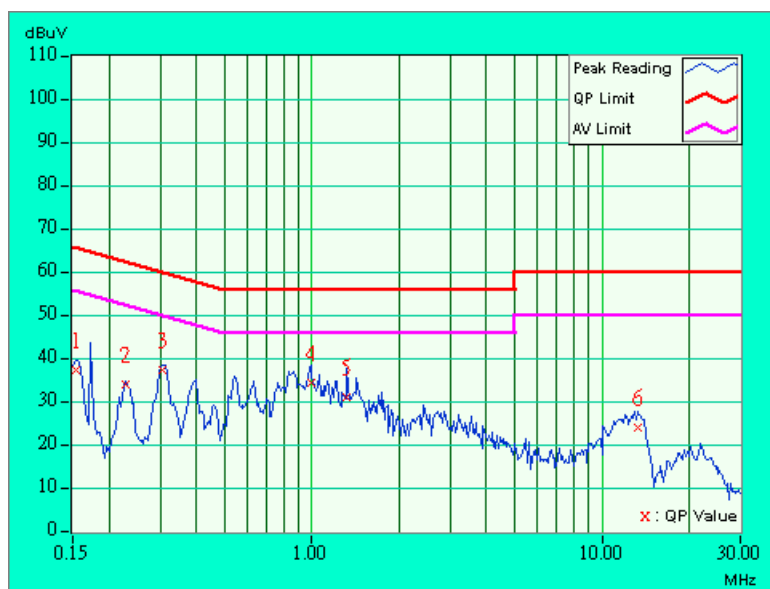
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.154	0.10	36.81	-	36.91	-	65.79	55.79	-28.88	-
2	0.228	0.11	33.59	-	33.70	-	62.52	52.52	-28.81	-
3	0.306	0.15	36.79	-	36.94	-	60.07	50.07	-23.13	-
4	0.994	0.30	33.95	-	34.25	-	56.00	46.00	-21.75	-
5	1.324	0.33	30.55	-	30.88	-	56.00	46.00	-25.12	-
6	13.344	0.60	23.57	-	24.17	-	60.00	50.00	-35.83	-

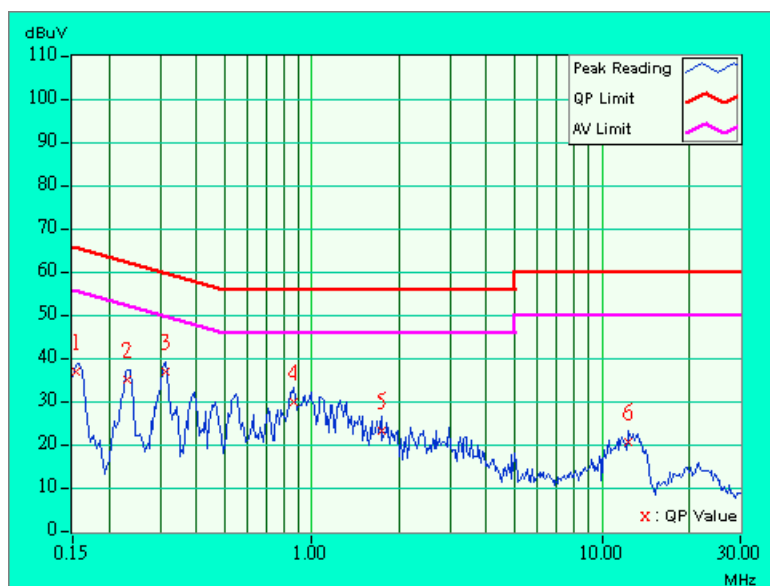
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.154	0.10	36.27	-	36.37	-	65.79	55.79	-29.42	-
2	0.232	0.12	34.51	-	34.63	-	62.38	52.38	-27.75	-
3	0.314	0.16	36.11	-	36.27	-	59.86	49.86	-23.60	-
4	0.865	0.28	29.17	-	29.45	-	56.00	46.00	-26.55	-
5	1.738	0.37	22.55	-	22.92	-	56.00	46.00	-33.08	-
6	12.402	0.75	19.92	-	20.67	-	60.00	50.00	-39.33	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

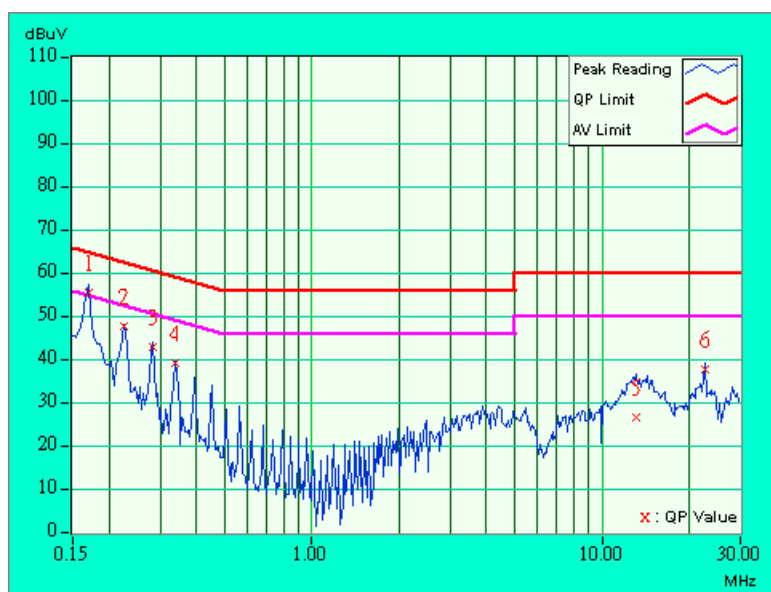


4.1.8 TEST RESULTS (TEST MODE 5)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
CHANNEL	0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	54.64	-	54.74	-	64.98	54.98	-10.24	-
2	0.224	0.11	46.89	-	47.00	-	62.66	52.66	-15.66	-
3	0.283	0.14	42.04	-	42.18	-	60.73	50.73	-18.55	-
4	0.338	0.17	38.36	-	38.53	-	59.26	49.26	-20.74	-
5	13.082	0.60	26.05	-	26.65	-	60.00	50.00	-33.35	-
6	22.570	0.75	36.86	-	37.61	-	60.00	50.00	-22.39	-

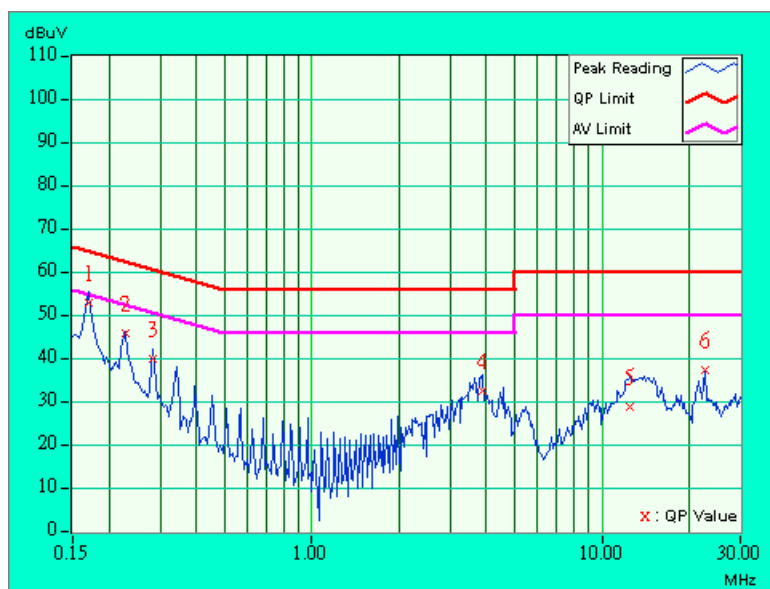
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	52.14	-	52.24	-	64.98	54.98	-12.74	-
2	0.228	0.11	44.82	-	44.93	-	62.52	52.52	-17.58	-
3	0.283	0.14	39.02	-	39.16	-	60.73	50.73	-21.57	-
4	3.859	0.49	31.43	-	31.92	-	56.00	46.00	-24.08	-
5	12.543	0.75	27.93	-	28.68	-	60.00	50.00	-31.32	-
6	22.570	1.00	36.43	-	37.43	-	60.00	50.00	-22.57	-

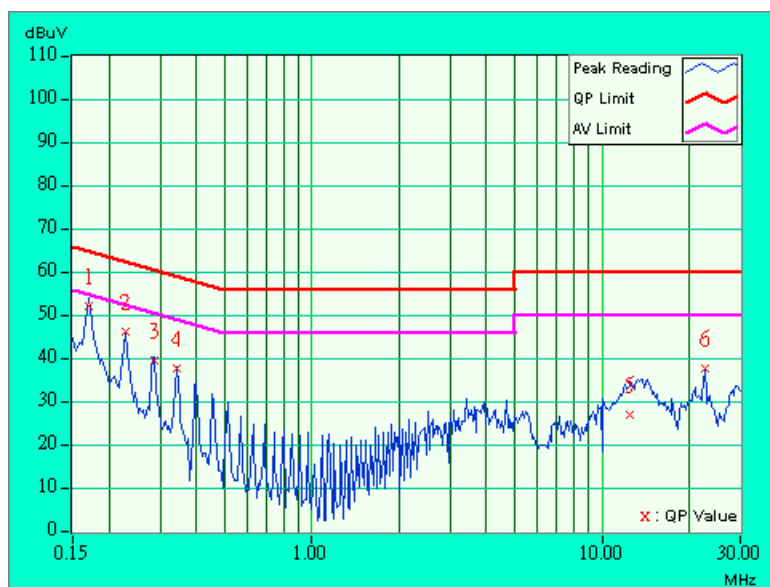
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	51.54	-	51.64	-	64.98	54.98	-13.34	-
2	0.228	0.11	45.40	-	45.51	-	62.52	52.52	-17.00	-
3	0.287	0.14	39.00	-	39.14	-	60.62	50.62	-21.48	-
4	0.341	0.17	36.86	-	37.03	-	59.17	49.17	-22.14	-
5	12.531	0.60	26.36	-	26.96	-	60.00	50.00	-33.04	-
6	22.570	0.75	36.99	-	37.74	-	60.00	50.00	-22.26	-

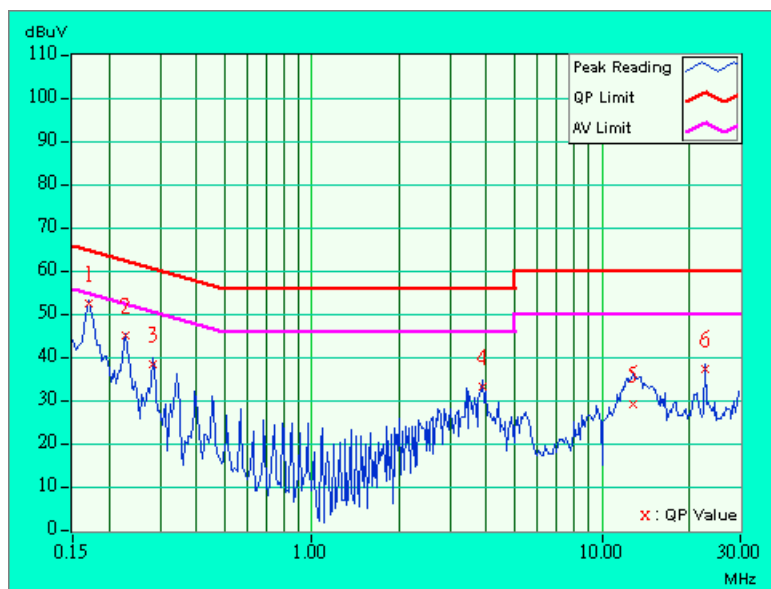
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	51.44	-	51.54	-	64.98	54.98	-13.44	-
2	0.228	0.11	44.31	-	44.42	-	62.52	52.52	-18.09	-
3	0.283	0.14	37.64	-	37.78	-	60.73	50.73	-22.95	-
4	3.867	0.49	32.24	-	32.73	-	56.00	46.00	-23.27	-
5	12.797	0.76	28.44	-	29.20	-	60.00	50.00	-30.80	-
6	22.570	1.00	36.41	-	37.41	-	60.00	50.00	-22.59	-

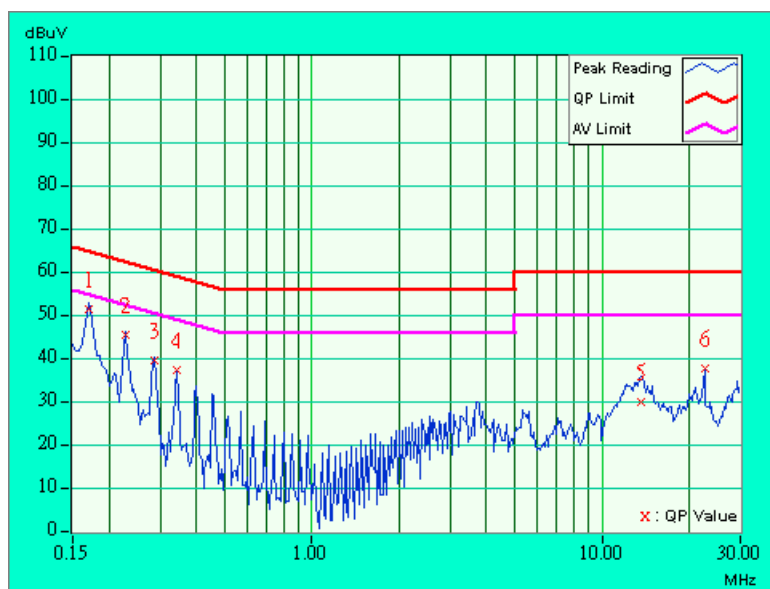
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	50.88	-	50.98	-	64.98	54.98	-14.00	-
2	0.228	0.11	44.69	-	44.80	-	62.52	52.52	-17.71	-
3	0.287	0.14	39.06	-	39.20	-	60.62	50.62	-21.42	-
4	0.341	0.17	36.54	-	36.71	-	59.17	49.17	-22.46	-
5	13.699	0.60	29.18	-	29.78	-	60.00	50.00	-30.22	-
6	22.570	0.75	36.97	-	37.72	-	60.00	50.00	-22.28	-

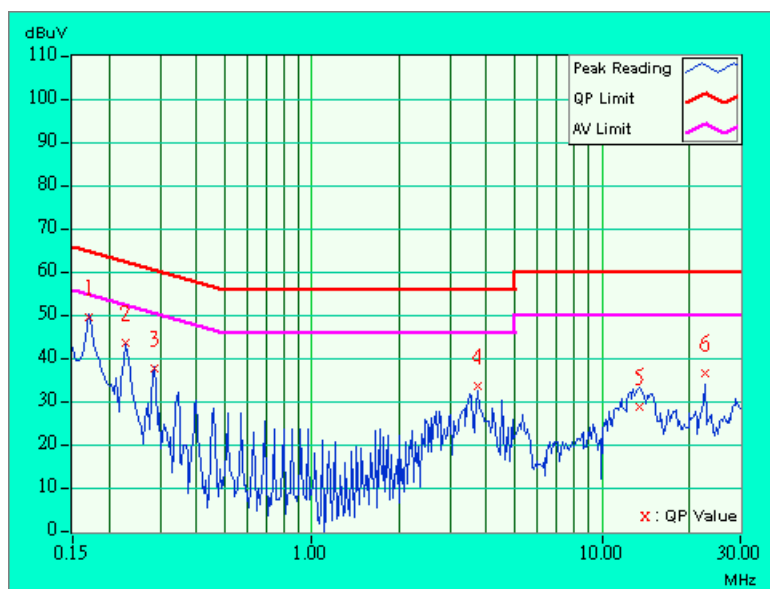
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	48.74	-	48.84	-	64.98	54.98	-16.14	-
2	0.228	0.11	42.57	-	42.68	-	62.52	52.52	-19.83	-
3	0.287	0.14	36.92	-	37.06	-	60.62	50.62	-23.56	-
4	3.715	0.49	32.80	-	33.29	-	56.00	46.00	-22.71	-
5	13.430	0.77	27.73	-	28.50	-	60.00	50.00	-31.50	-
6	22.570	1.00	35.71	-	36.71	-	60.00	50.00	-23.29	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

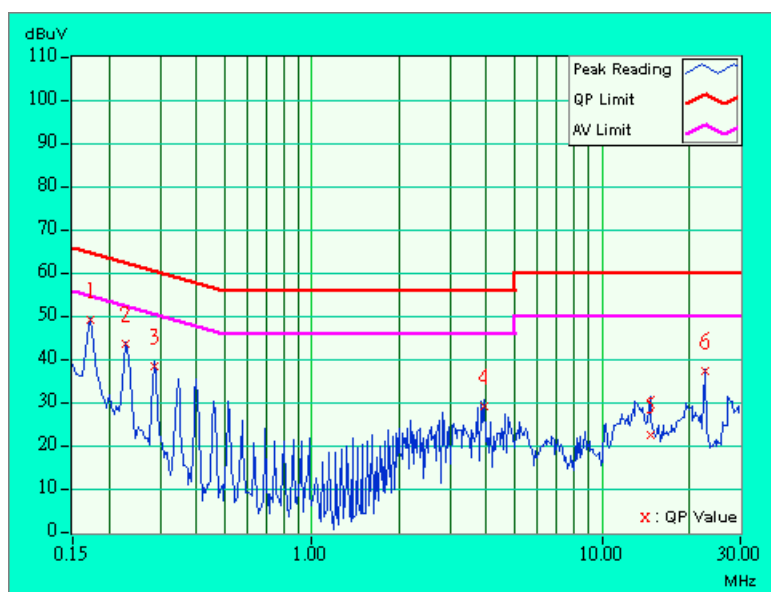


4.1.9 TEST RESULTS (TEST MODE 6)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
CHANNEL	0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	48.34	-	48.44	-	64.79	54.79	-16.35	-
2	0.228	0.11	42.78	-	42.89	-	62.52	52.52	-19.62	-
3	0.287	0.14	37.68	-	37.82	-	60.62	50.62	-22.80	-
4	3.906	0.40	28.53	-	28.93	-	56.00	46.00	-27.07	-
5	14.656	0.60	21.91	-	22.51	-	60.00	50.00	-37.49	-
6	22.570	0.75	36.55	-	37.30	-	60.00	50.00	-22.70	-

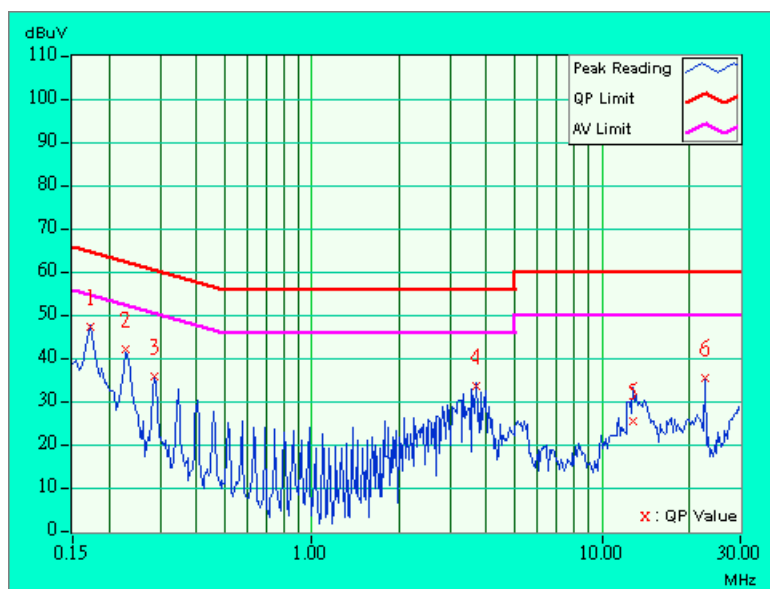
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	46.29	-	46.39	-	64.79	54.79	-18.40	-
2	0.228	0.11	41.13	-	41.24	-	62.52	52.52	-21.27	-
3	0.287	0.14	35.02	-	35.16	-	60.62	50.62	-25.46	-
4	3.676	0.48	32.56	-	33.04	-	56.00	46.00	-22.96	-
5	12.820	0.76	24.49	-	25.25	-	60.00	50.00	-34.75	-
6	22.570	1.00	34.62	-	35.62	-	60.00	50.00	-24.38	-

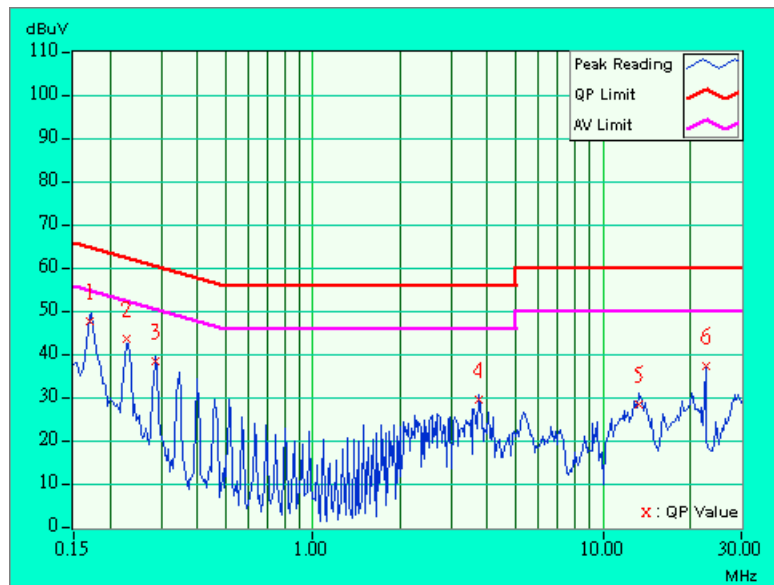
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	46.88	-	46.98	-	64.98	54.98	-18.00	-
2	0.228	0.11	42.86	-	42.97	-	62.52	52.52	-19.54	-
3	0.287	0.14	37.78	-	37.92	-	60.62	50.62	-22.70	-
4	3.727	0.40	28.85	-	29.25	-	56.00	46.00	-26.75	-
5	13.309	0.60	27.92	-	28.52	-	60.00	50.00	-31.48	-
6	22.570	0.75	36.67	-	37.42	-	60.00	50.00	-22.58	-

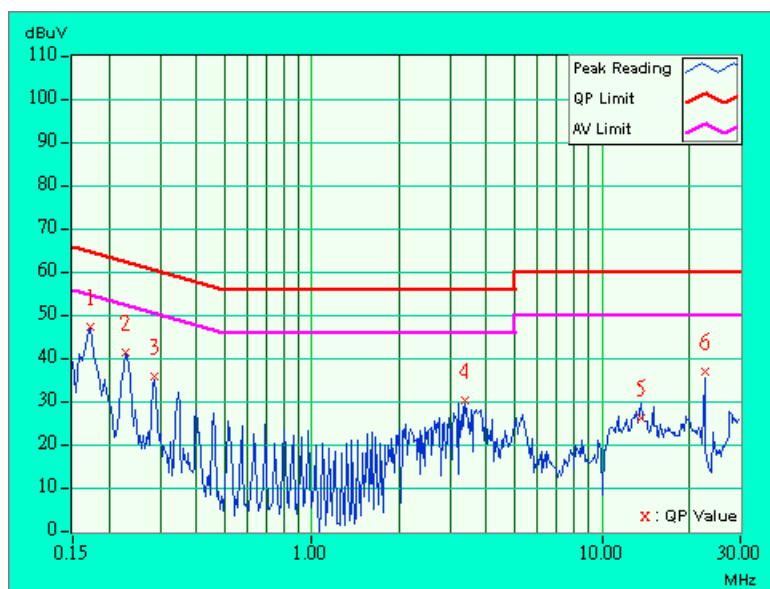
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	46.35	-	46.45	-	64.79	54.79	-18.34	-
2	0.228	0.11	40.65	-	40.76	-	62.52	52.52	-21.75	-
3	0.287	0.14	35.04	-	35.18	-	60.62	50.62	-25.44	-
4	3.383	0.47	29.52	-	29.99	-	56.00	46.00	-26.01	-
5	13.594	0.77	25.28	-	26.05	-	60.00	50.00	-33.95	-
6	22.570	1.00	36.00	-	37.00	-	60.00	50.00	-23.00	-

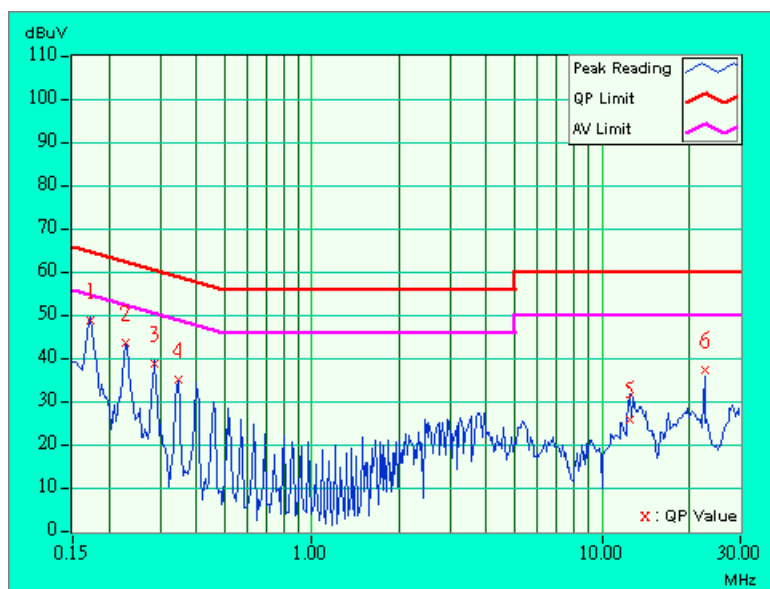
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	47.97	-	48.07	-	64.79	54.79	-16.72	-
2	0.228	0.11	43.00	-	43.11	-	62.52	52.52	-19.40	-
3	0.287	0.14	37.96	-	38.10	-	60.62	50.62	-22.52	-
4	0.345	0.17	34.54	-	34.71	-	59.07	49.07	-24.36	-
5	12.496	0.60	25.30	-	25.90	-	60.00	50.00	-34.10	-
6	22.570	0.75	36.51	-	37.26	-	60.00	50.00	-22.74	-

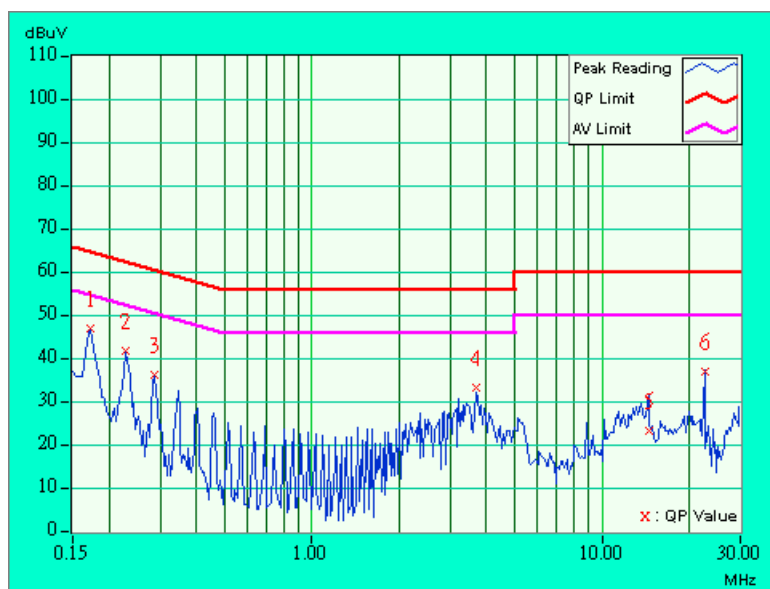
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	45.86	-	45.96	-	64.79	54.79	-18.83	-
2	0.228	0.11	40.67	-	40.78	-	62.52	52.52	-21.73	-
3	0.287	0.14	35.14	-	35.28	-	60.62	50.62	-25.34	-
4	3.668	0.48	32.19	-	32.67	-	56.00	46.00	-23.33	-
5	14.457	0.79	22.31	-	23.10	-	60.00	50.00	-36.90	-
6	22.570	1.00	36.00	-	37.00	-	60.00	50.00	-23.00	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

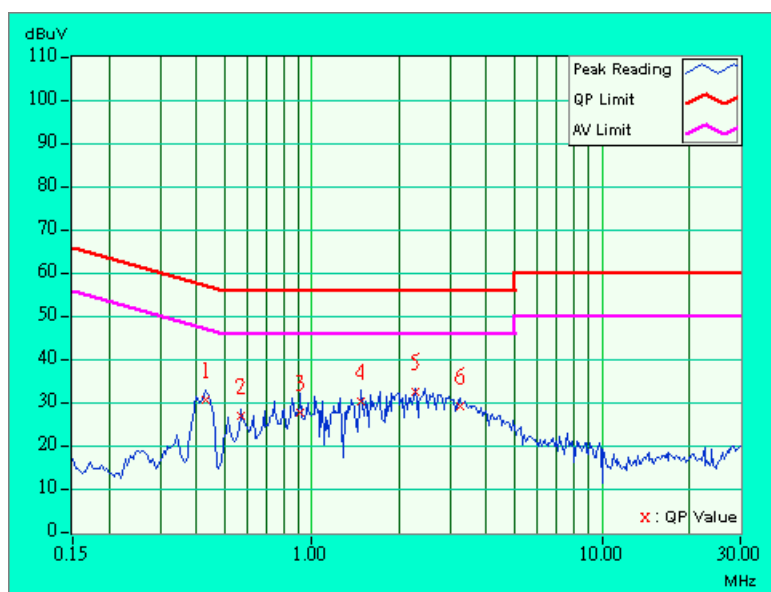


4.1.10 TEST RESULTS (TEST MODE 7)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
CHANNEL	0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.431	0.21	30.21	-	30.42	-	57.23	47.23	-26.81	-
2	0.572	0.23	26.69	-	26.92	-	56.00	46.00	-29.08	-
3	0.916	0.29	27.52	-	27.81	-	56.00	46.00	-28.19	-
4	1.484	0.35	29.94	-	30.29	-	56.00	46.00	-25.71	-
5	2.285	0.40	32.09	-	32.49	-	56.00	46.00	-23.51	-
6	3.250	0.40	28.91	-	29.31	-	56.00	46.00	-26.69	-

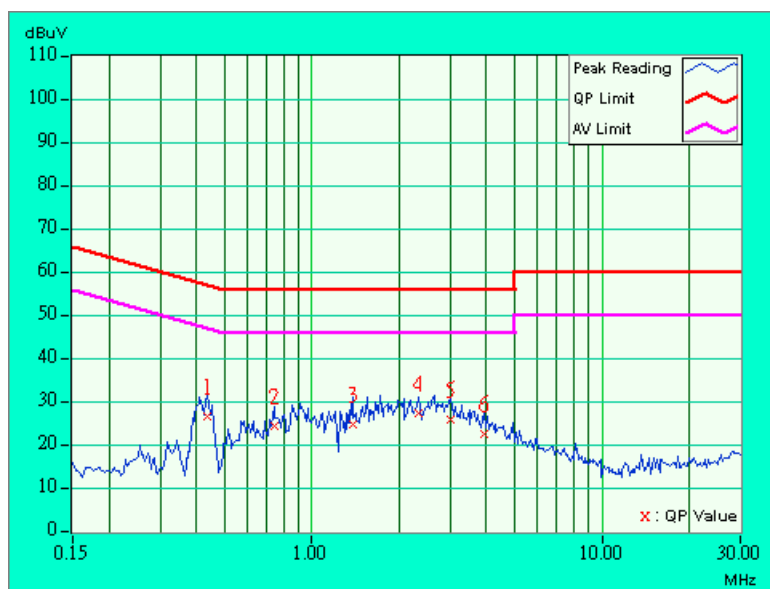
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.435	0.21	26.09	-	26.30	-	57.15	47.15	-30.86	-
2	0.740	0.26	23.99	-	24.25	-	56.00	46.00	-31.75	-
3	1.383	0.34	24.49	-	24.83	-	56.00	46.00	-31.17	-
4	2.336	0.42	27.03	-	27.45	-	56.00	46.00	-28.55	-
5	3.016	0.45	25.34	-	25.79	-	56.00	46.00	-30.21	-
6	3.914	0.50	22.28	-	22.78	-	56.00	46.00	-33.22	-

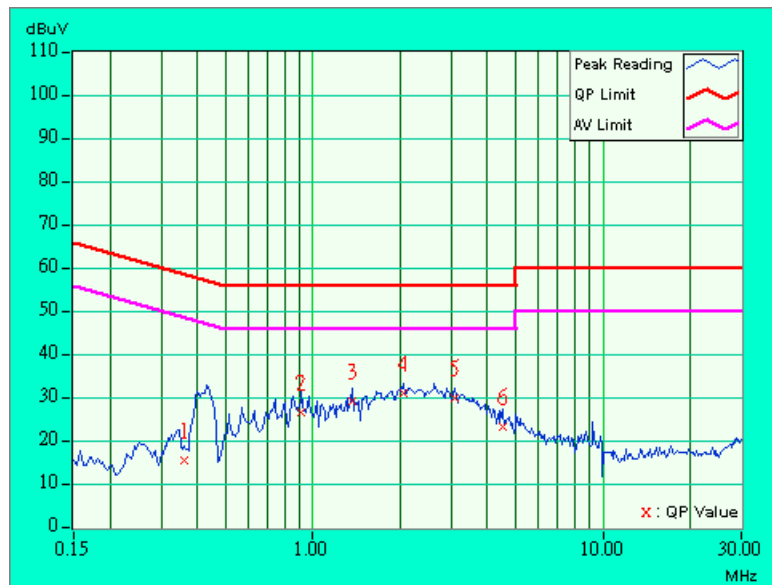
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.361	0.18	15.01	-	15.19	-	58.71	48.71	-43.52	-
2	0.916	0.29	26.14	-	26.43	-	56.00	46.00	-29.57	-
3	1.367	0.34	28.69	-	29.03	-	56.00	46.00	-26.97	-
4	2.055	0.40	30.73	-	31.13	-	56.00	46.00	-24.87	-
5	3.082	0.40	29.47	-	29.87	-	56.00	46.00	-26.13	-
6	4.508	0.42	23.05	-	23.47	-	56.00	46.00	-32.53	-

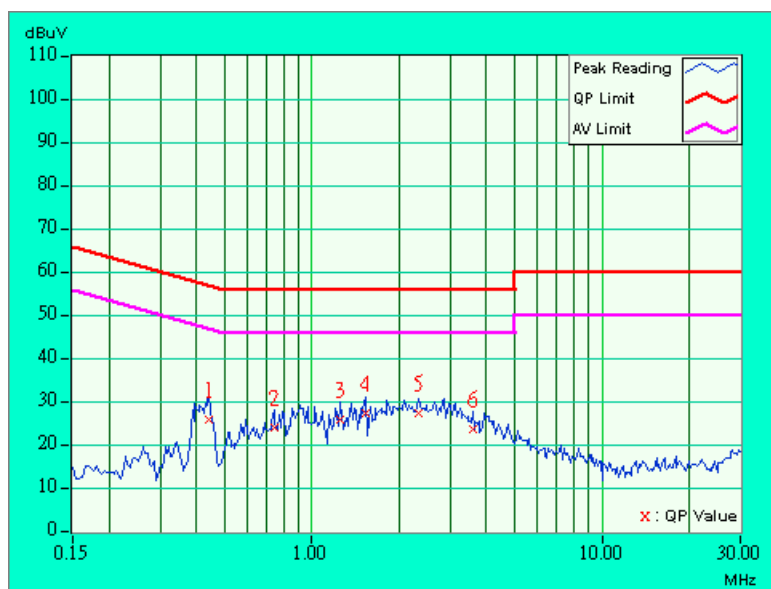
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.439	0.21	25.49	-	25.70	-	57.08	47.08	-31.38	-
2	0.744	0.26	23.61	-	23.87	-	56.00	46.00	-32.13	-
3	1.254	0.33	25.51	-	25.84	-	56.00	46.00	-30.16	-
4	1.543	0.35	26.96	-	27.31	-	56.00	46.00	-28.69	-
5	2.336	0.42	26.87	-	27.29	-	56.00	46.00	-28.71	-
6	3.590	0.48	23.31	-	23.79	-	56.00	46.00	-32.21	-

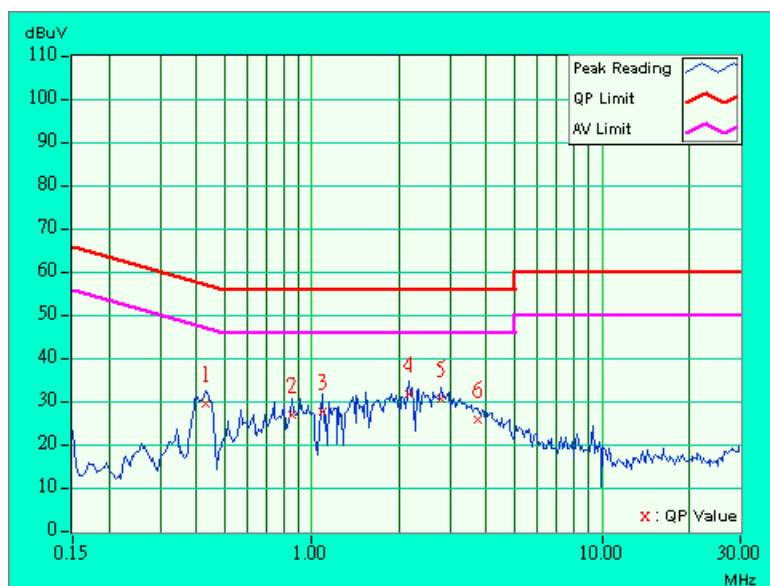
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.431	0.21	29.05	-	29.26	-	57.23	47.23	-27.97	-
2	0.857	0.28	26.58	-	26.86	-	56.00	46.00	-29.14	-
3	1.086	0.31	27.29	-	27.60	-	56.00	46.00	-28.40	-
4	2.168	0.40	31.30	-	31.70	-	56.00	46.00	-24.30	-
5	2.793	0.40	30.17	-	30.57	-	56.00	46.00	-25.43	-
6	3.715	0.40	25.41	-	25.81	-	56.00	46.00	-30.19	-

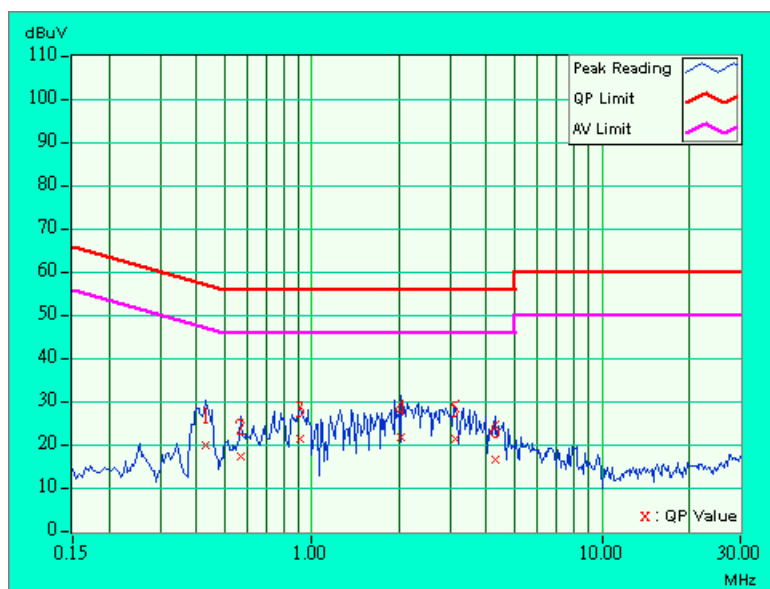
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.431	0.21	19.42	-	19.63	-	57.23	47.23	-37.60	-
2	0.568	0.23	16.92	-	17.15	-	56.00	46.00	-38.85	-
3	0.916	0.29	21.10	-	21.39	-	56.00	46.00	-34.61	-
4	2.039	0.40	21.28	-	21.68	-	56.00	46.00	-34.32	-
5	3.141	0.46	21.10	-	21.56	-	56.00	46.00	-34.44	-
6	4.270	0.51	16.19	-	16.70	-	56.00	46.00	-39.30	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

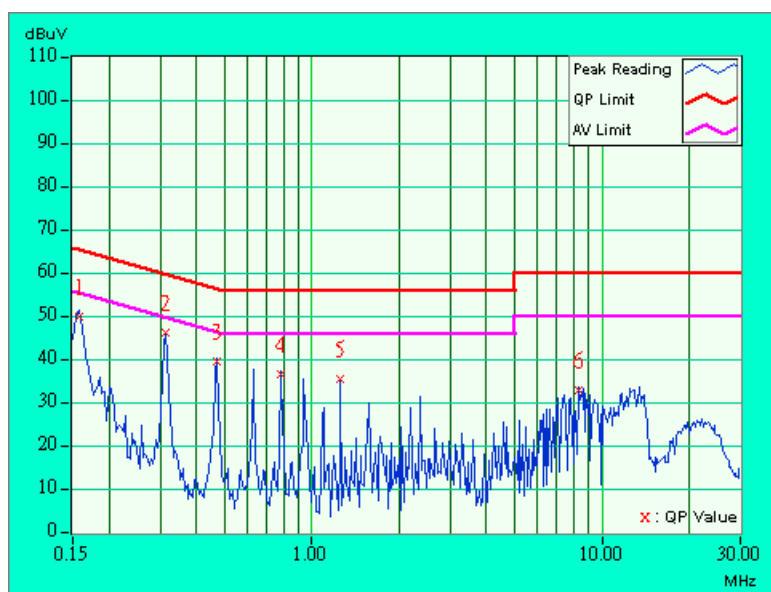


4.1.11 TEST RESULTS (TEST MODE 8)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
CHANNEL	0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	49.60	-	49.70	-	65.58	55.58	-15.88	-
2	0.314	0.16	45.61	-	45.77	-	59.86	49.86	-14.10	-
3	0.470	0.21	39.20	-	39.41	-	56.51	46.51	-17.10	-
4	0.783	0.26	36.28	-	36.54	-	56.00	46.00	-19.46	-
5	1.254	0.33	34.95	-	35.28	-	56.00	46.00	-20.72	-
6	8.313	0.54	32.29	-	32.83	-	60.00	50.00	-27.17	-

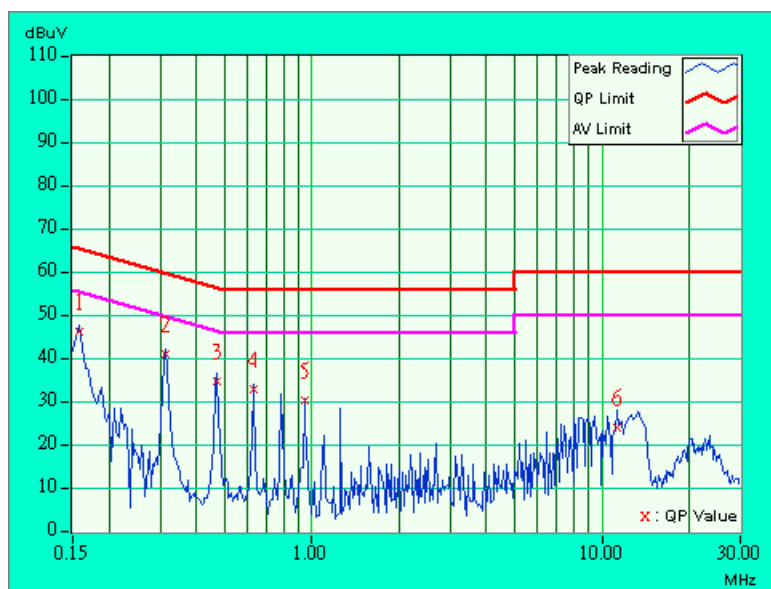
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 0	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	45.63	-	45.73	-	65.58	55.58	-19.85	-
2	0.314	0.16	40.23	-	40.39	-	59.86	49.86	-19.48	-
3	0.470	0.21	34.22	-	34.43	-	56.51	46.51	-22.08	-
4	0.627	0.24	32.13	-	32.37	-	56.00	46.00	-23.63	-
5	0.943	0.29	29.48	-	29.77	-	56.00	46.00	-26.23	-
6	11.301	0.73	23.27	-	24.00	-	60.00	50.00	-36.00	-

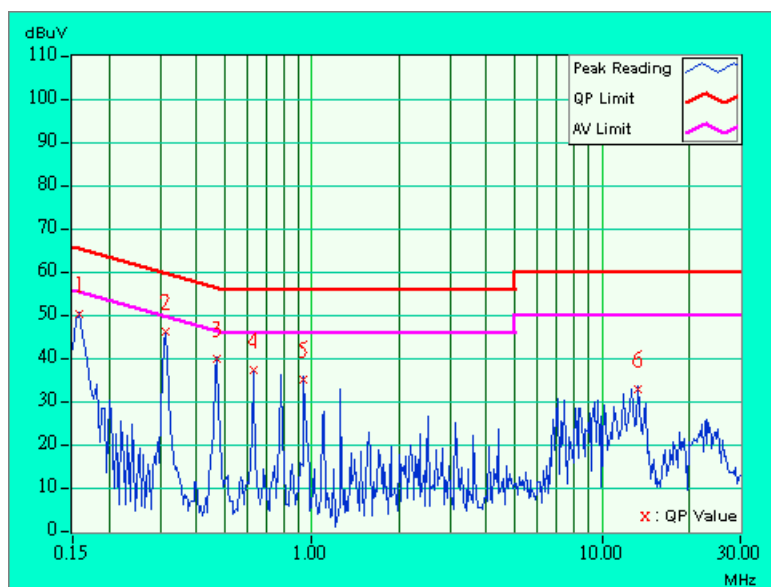
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	49.60	-	49.70	-	65.58	55.58	-15.88	-
2	0.314	0.16	45.61	-	45.77	-	59.86	49.86	-14.10	-
3	0.470	0.21	39.26	-	39.47	-	56.51	46.51	-17.04	-
4	0.627	0.24	36.73	-	36.97	-	56.00	46.00	-19.03	-
5	0.939	0.29	34.71	-	35.00	-	56.00	46.00	-21.00	-
6	13.324	0.60	32.51	-	33.11	-	60.00	50.00	-26.89	-

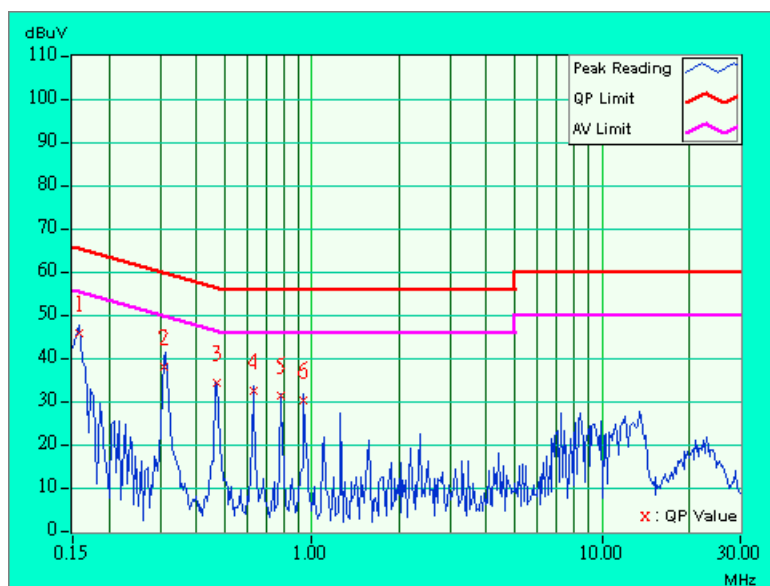
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	45.47	-	45.57	-	65.58	55.58	-20.01	-
2	0.310	0.16	37.71	-	37.87	-	59.97	49.97	-22.10	-
3	0.470	0.21	34.22	-	34.43	-	56.51	46.51	-22.08	-
4	0.627	0.24	32.19	-	32.43	-	56.00	46.00	-23.57	-
5	0.783	0.26	31.20	-	31.46	-	56.00	46.00	-24.54	-
6	0.939	0.29	30.08	-	30.37	-	56.00	46.00	-25.63	-

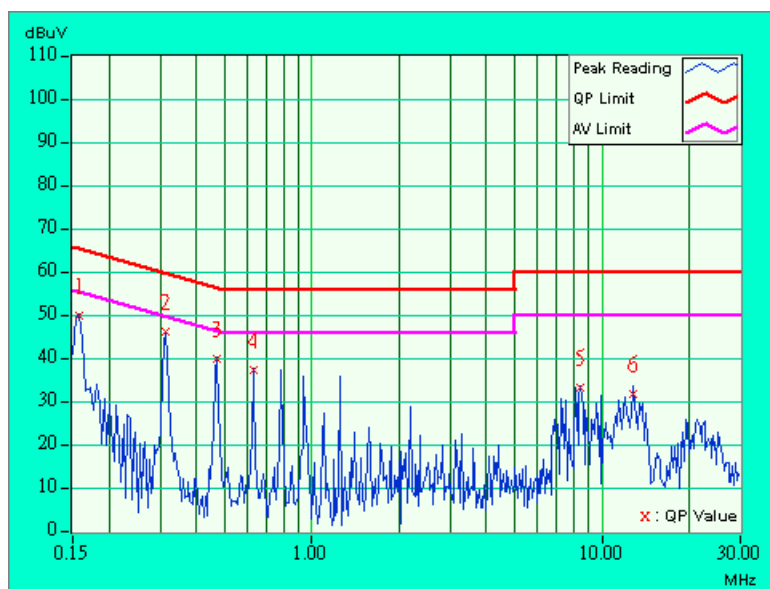
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	49.54	-	49.64	-	65.58	55.58	-15.94	-
2	0.314	0.16	45.59	-	45.75	-	59.86	49.86	-14.12	-
3	0.470	0.21	39.26	-	39.47	-	56.51	46.51	-17.04	-
4	0.627	0.24	36.77	-	37.01	-	56.00	46.00	-18.99	-
5	8.465	0.55	32.55	-	33.10	-	60.00	50.00	-26.90	-
6	12.855	0.60	31.41	-	32.01	-	60.00	50.00	-27.99	-

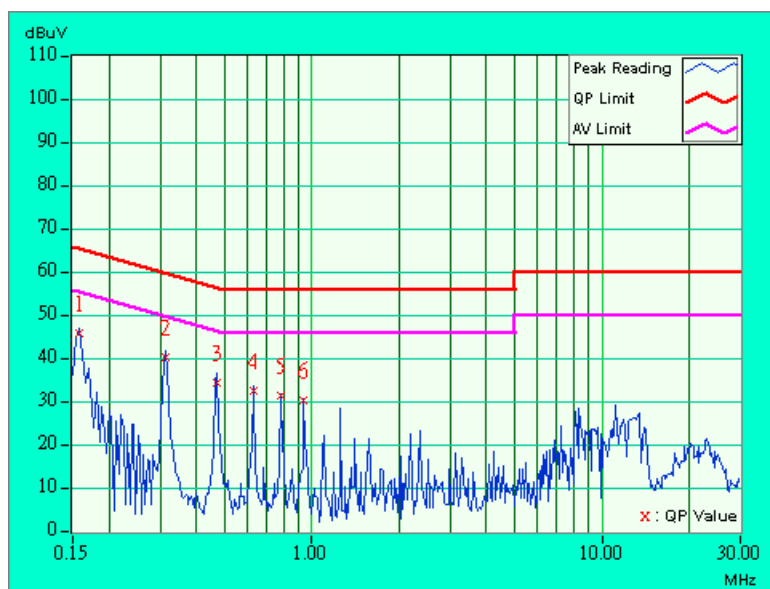
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 50%RH, 991 hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	45.47	-	45.57	-	65.58	55.58	-20.01	-
2	0.314	0.16	40.19	-	40.35	-	59.86	49.86	-19.52	-
3	0.470	0.21	34.24	-	34.45	-	56.51	46.51	-22.06	-
4	0.627	0.24	32.25	-	32.49	-	56.00	46.00	-23.51	-
5	0.783	0.26	31.16	-	31.42	-	56.00	46.00	-24.58	-
6	0.939	0.29	30.00	-	30.29	-	56.00	46.00	-25.71	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



4.2 NUMBER OF HOPPING FREQUENCY USED

4.2.1 LIMIT OF HOPPING FREQUENCY USED

At least 15 hopping frequencies, and should be equally spaced.

4.2.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004

NOTE:

The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

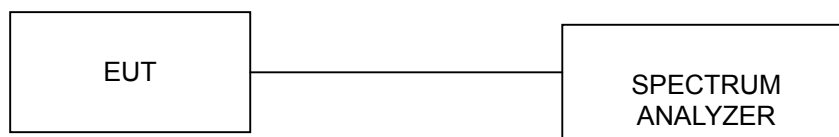
4.2.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
4. Set the SA on View mode and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

4.2.4 DEVIATION FROM TEST STANDARD

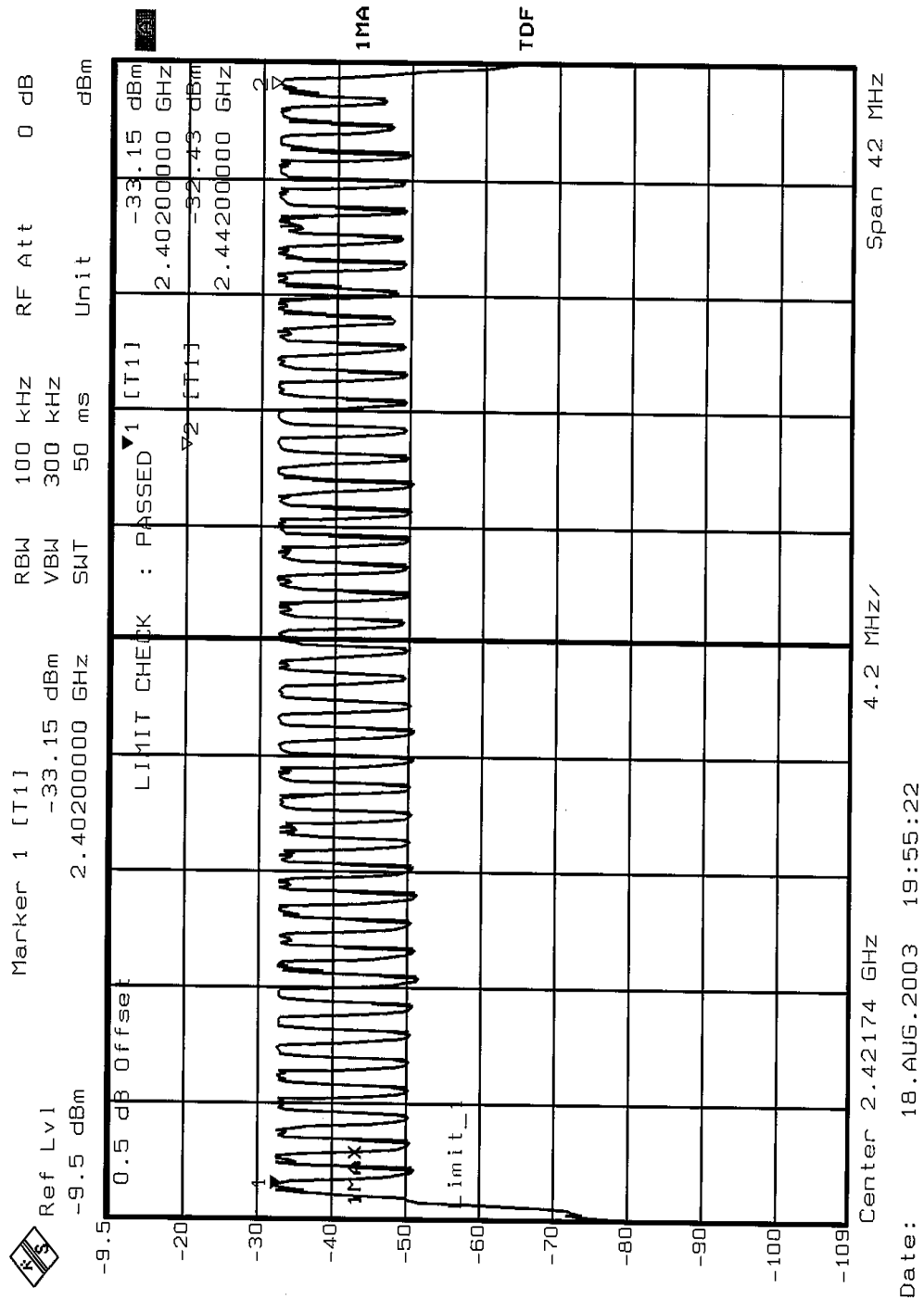
No deviation

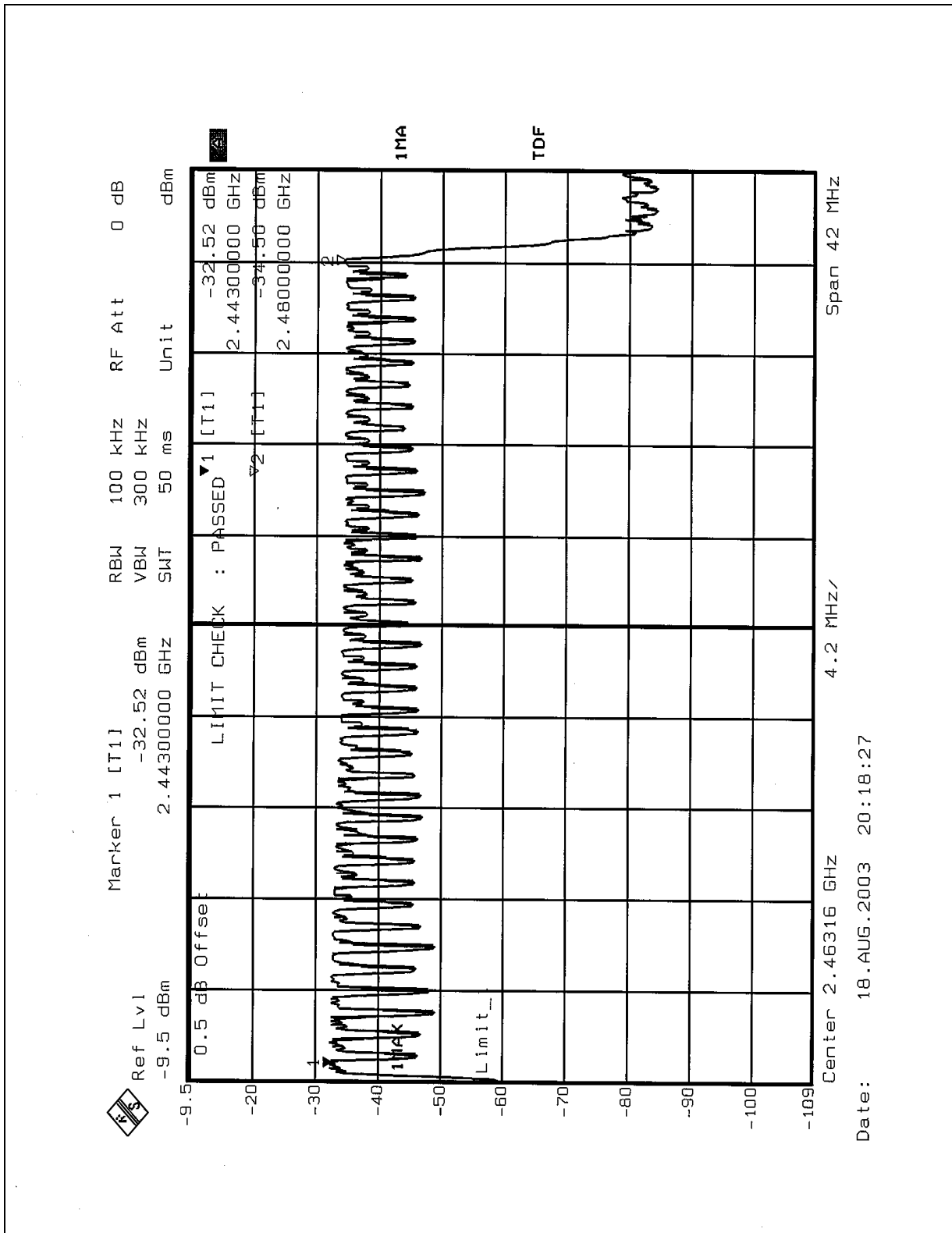
4.2.5 TEST SETUP



4.2.6 TEST RESULTS

There are 79 hopping frequencies in the hopping mode. Please refer to next two pages for the test result. On the plots, it shows that the hopping frequencies are equally spaced.





4.3 DWELL TIME ON EACH CHANNEL

4.3.1 LIMIT OF DWELL TIME USED

For FHSS, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 31.6 second period. For hybrid systems, the average time of occupancy on any frequency should not exceed 0.4 seconds within a time period in seconds equal to the number of hopping frequencies employed multiplied by 0.4.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004

NOTES:

The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
5. Repeat above procedures until all frequencies measured were complete.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP

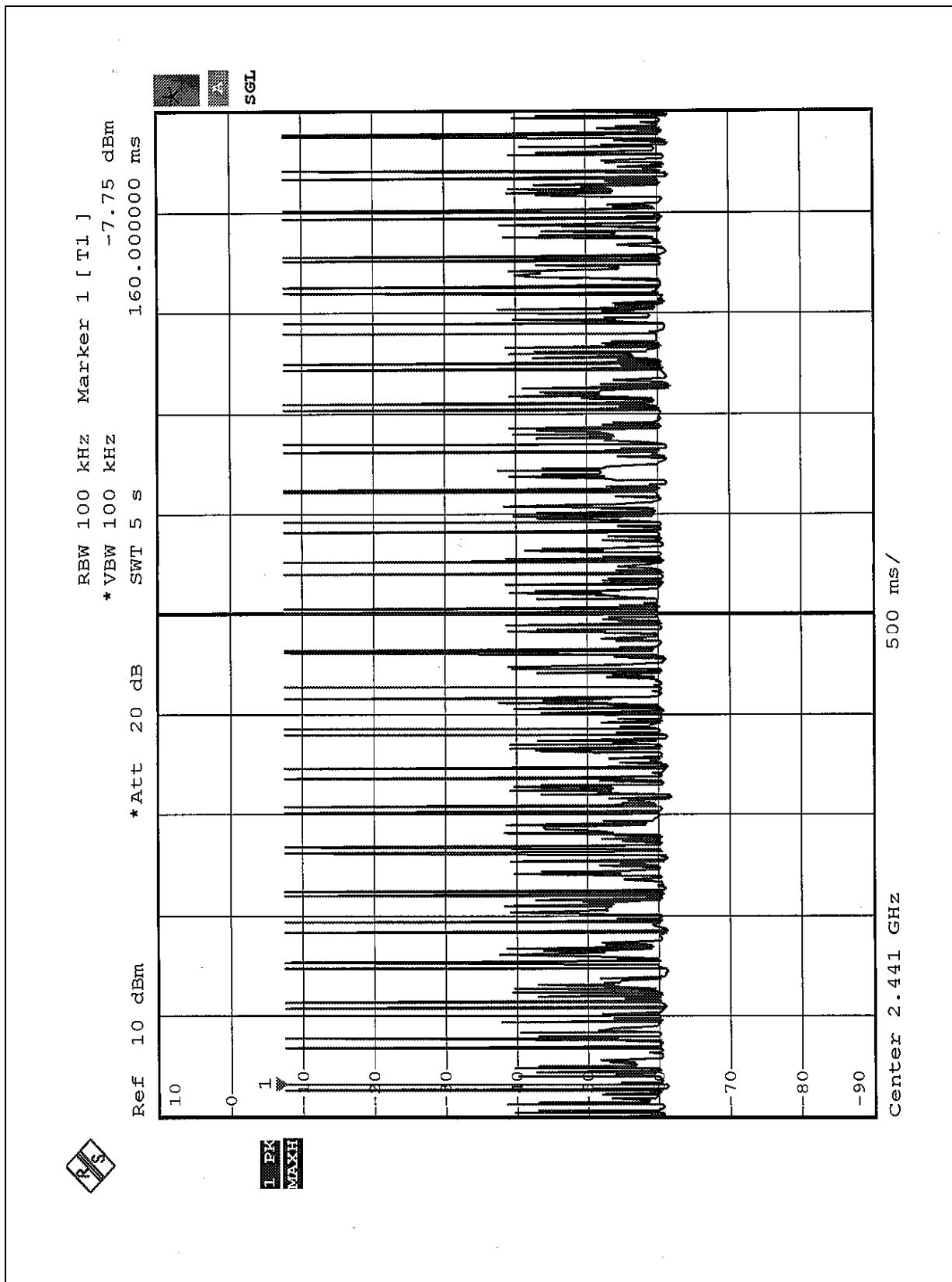


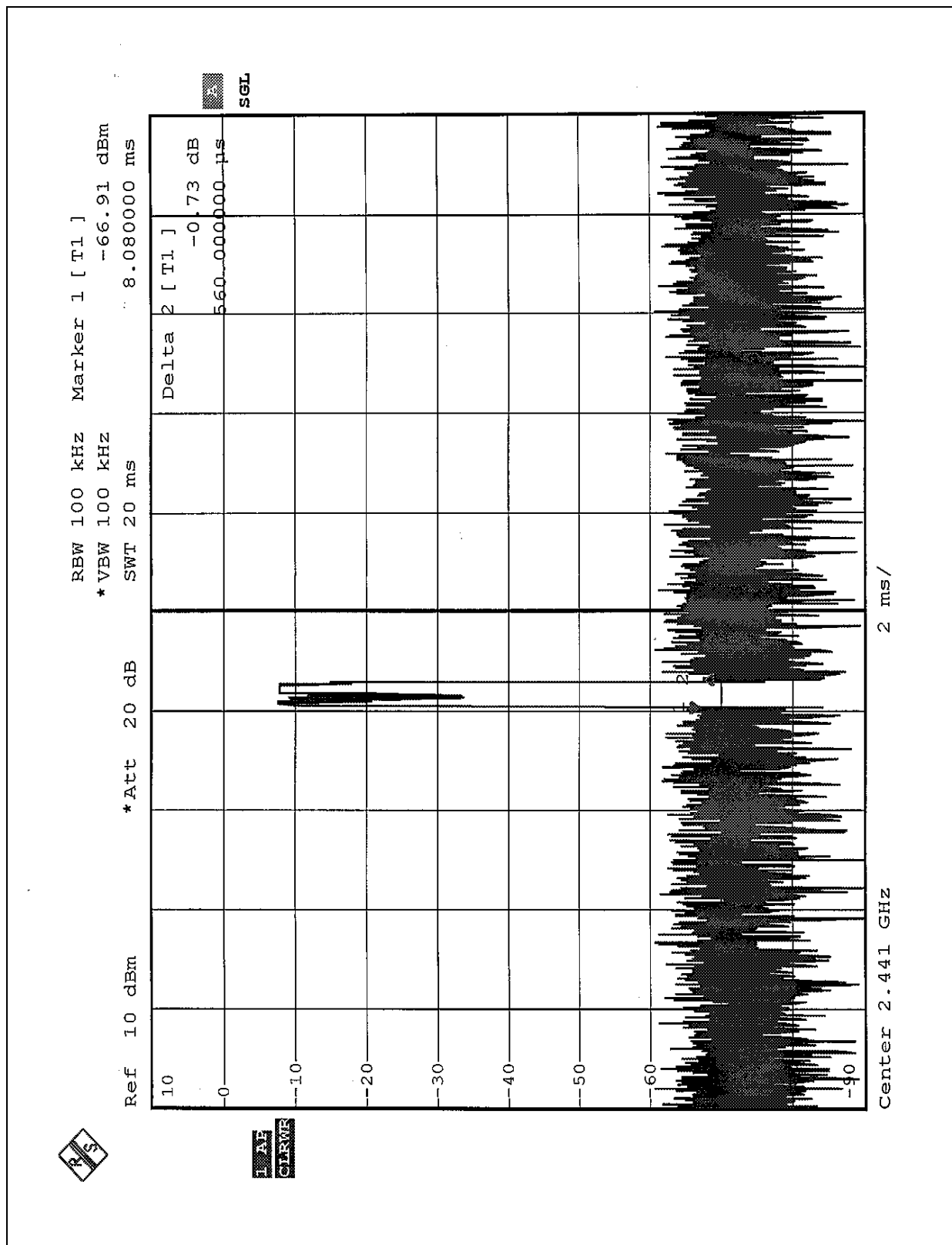
4.3.6 TEST RESULTS

Mode	Number of transmission in a 31.6 (79Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
DH1	50 times / 5 sec *6.32=316.0 times	0.56	176.96	400
DH3	20 times / 5 sec *6.32=126.4 times	2.00	252.80	400
DH5	15 times / 5 sec *6.32= 94.8 times	3.20	303.36	400

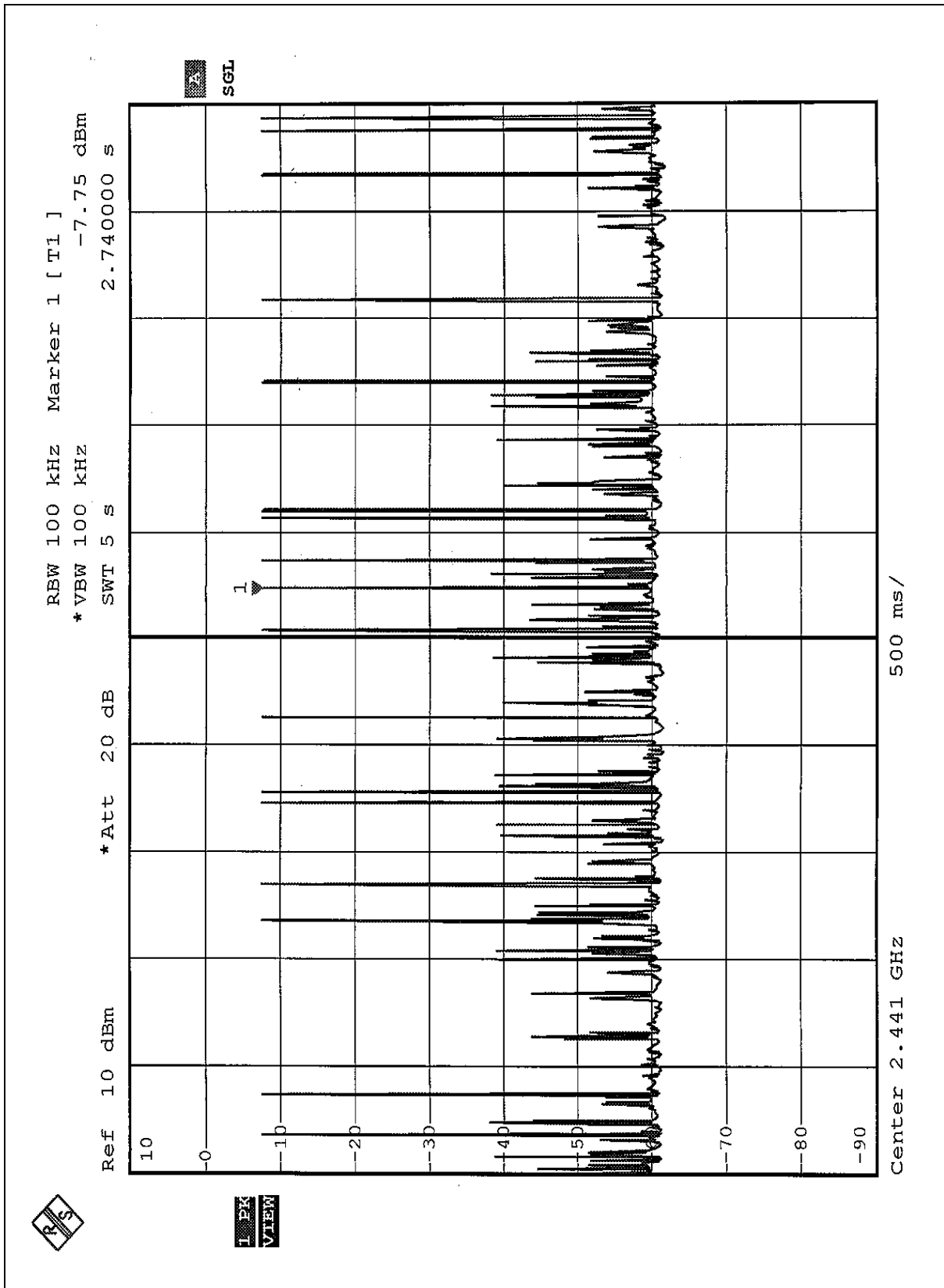
Test plots of the transmitting time slot are shown on next six pages.

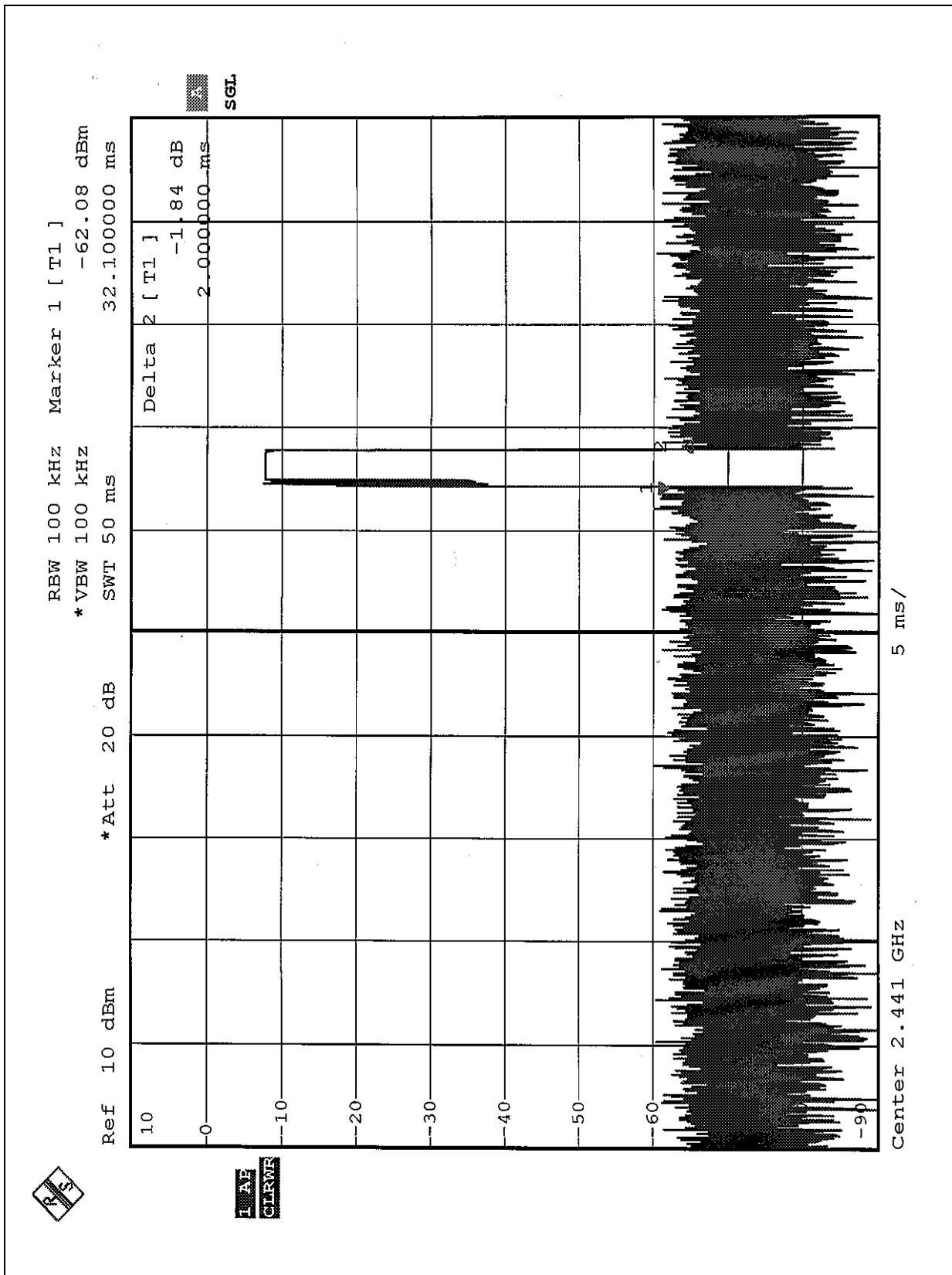
DH1



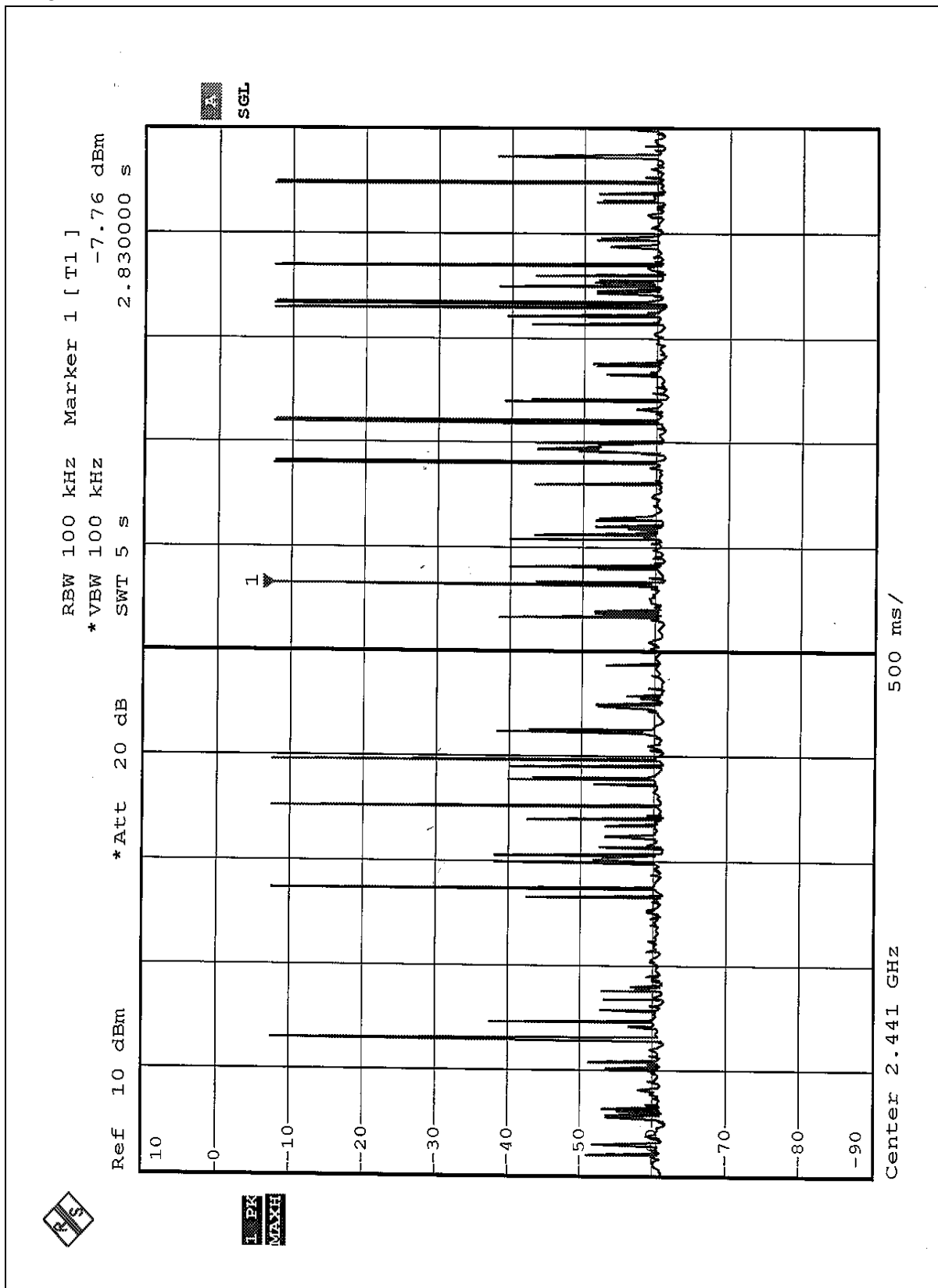


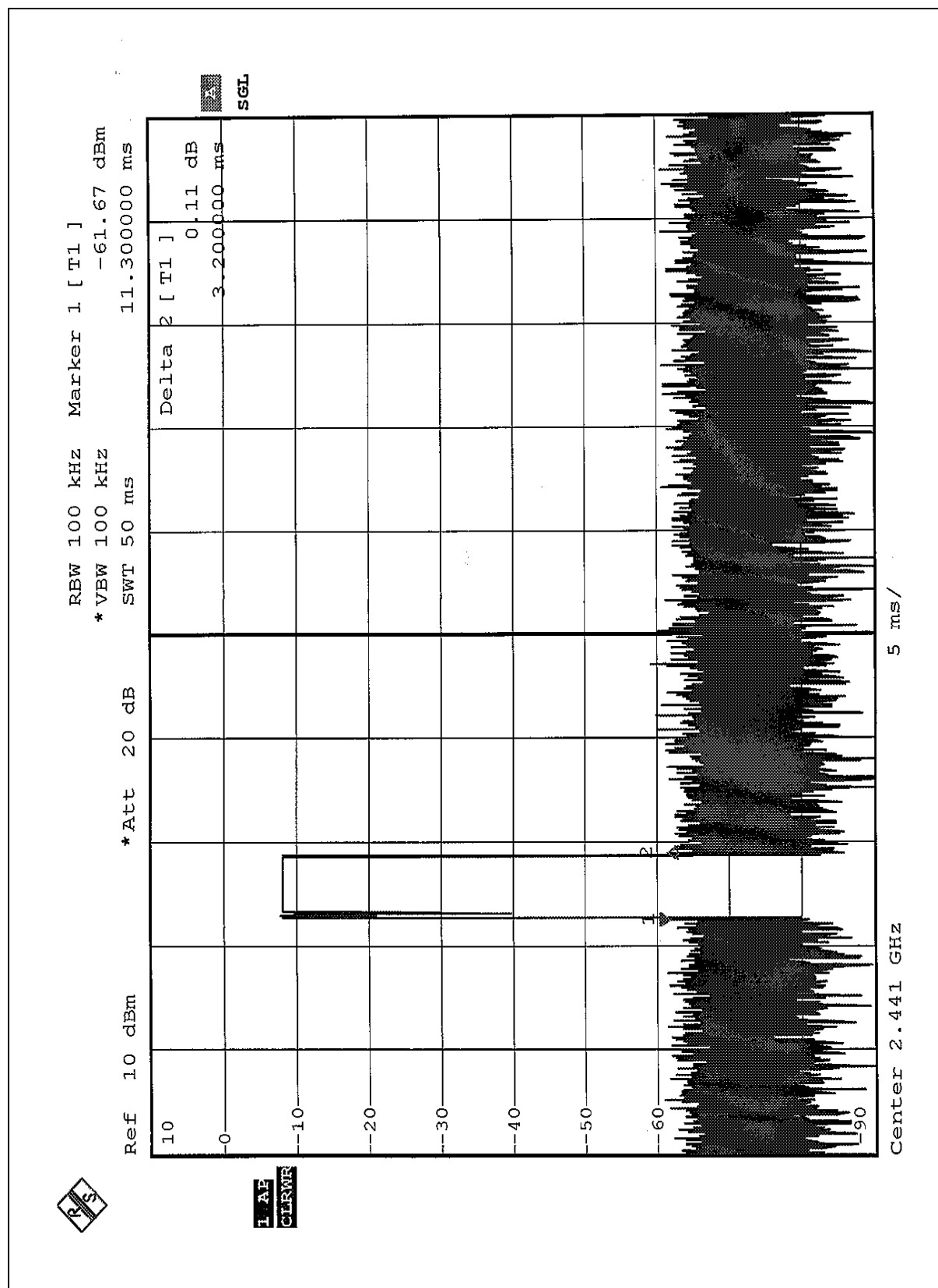
DH3





DH5





4.4 CHANNEL BANDWIDTH

4.4.1 LIMITS OF CHANNEL BANDWIDTH

For frequency hopping system operating in the 2400-2483.5 MHz and 5725-5850 MHz bands, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

4.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004

NOTES:

The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



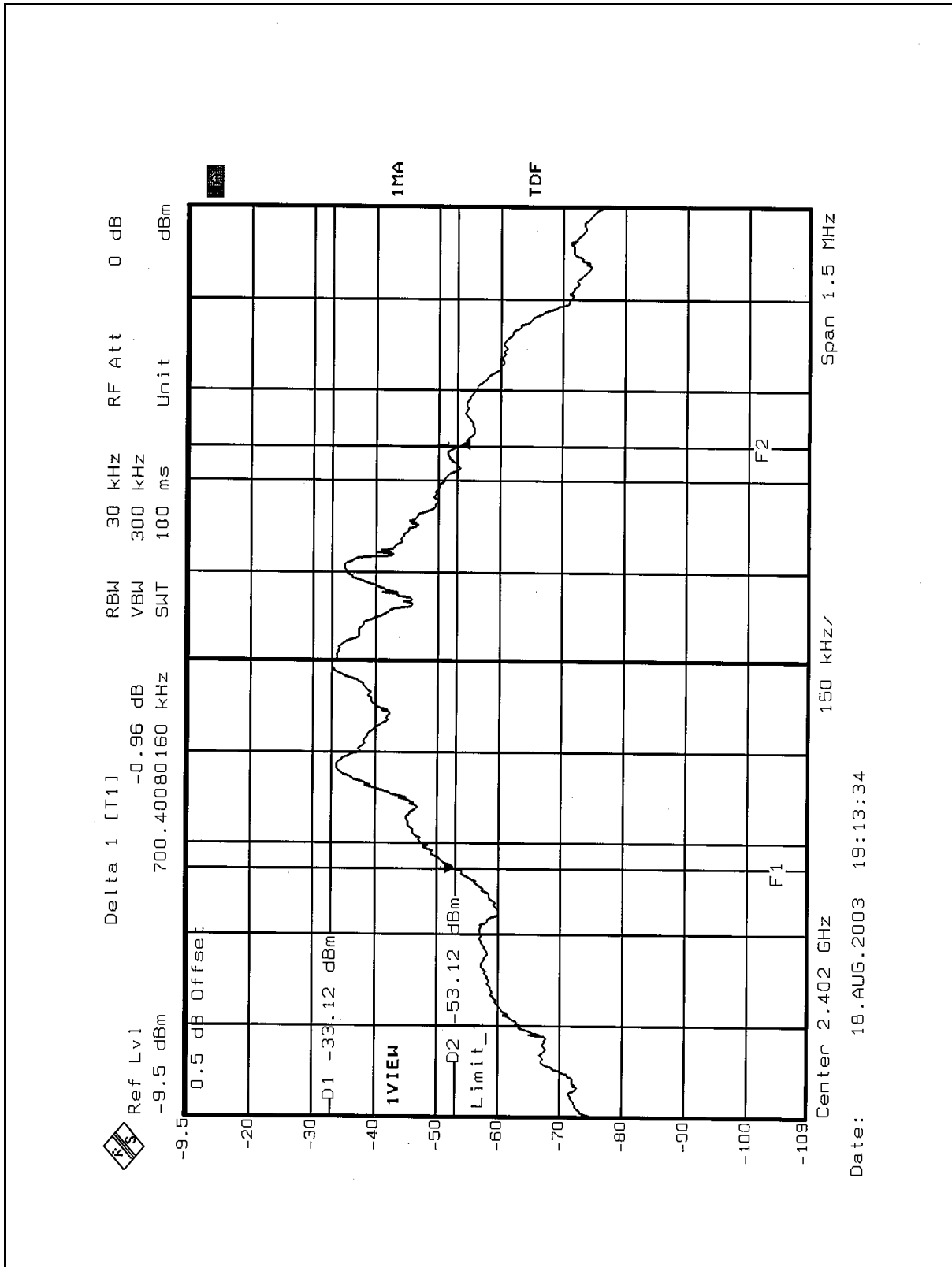
4.4.6 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

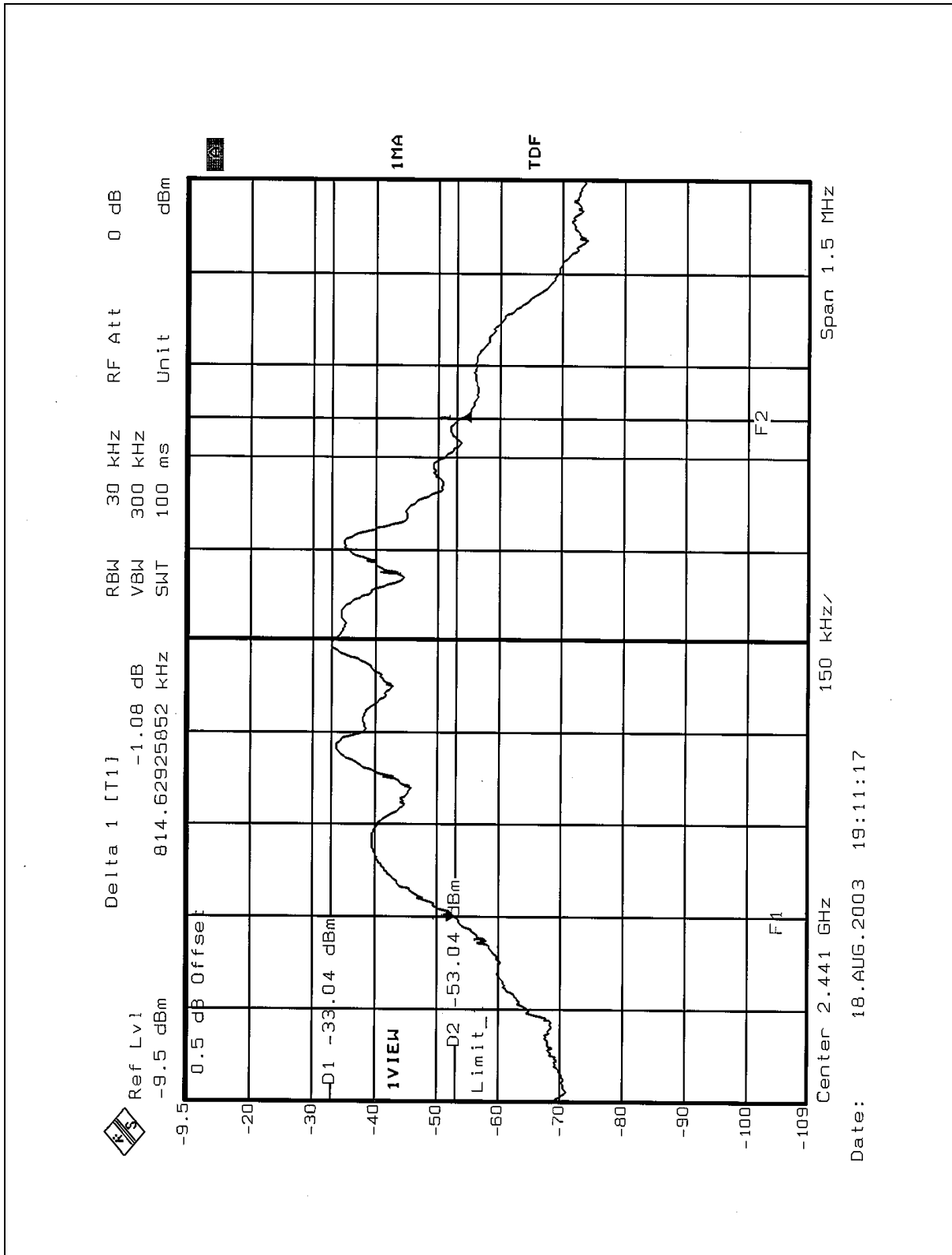
4.4.7 TEST RESULTS

CHANNEL	CHANNEL FREQUENCY (MHz)	20 dB BANDWIDTH (kHz)	MAXIMUM LIMIT (MHz)	PASS/FAIL
0	2402	700.40	1	PASS
39	2441	814.63	1	PASS
78	2480	958.92	1	PASS

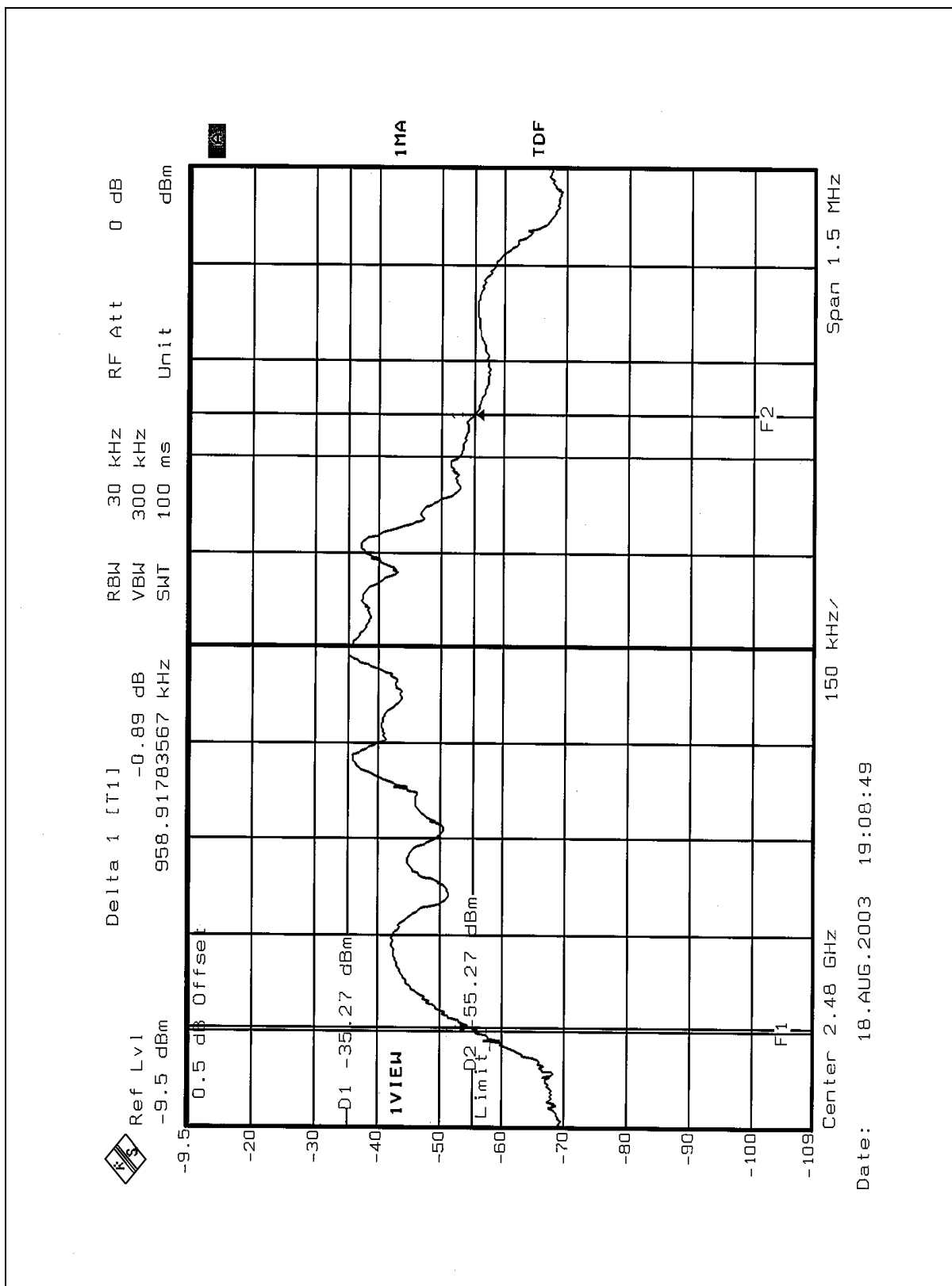
Channel 0



Channel 39



Channel 78



4.5 HOPPING CHANNEL SEPARATION

4.5.1 LIMIT OF HOPPING CHANNEL SEPARATION

At least 25kHz or 20dB bandwidth (whichever is greater).

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004

NOTE:

The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

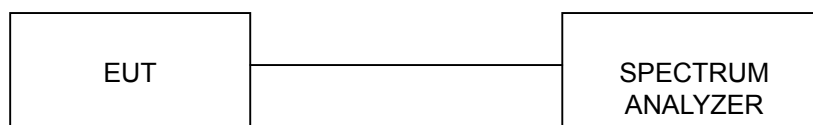
4.5.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the MaxHold function record the separation of two adjacent channels.
4. Measure the frequency difference of these two adjacent channels by SA MARK function. And then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP

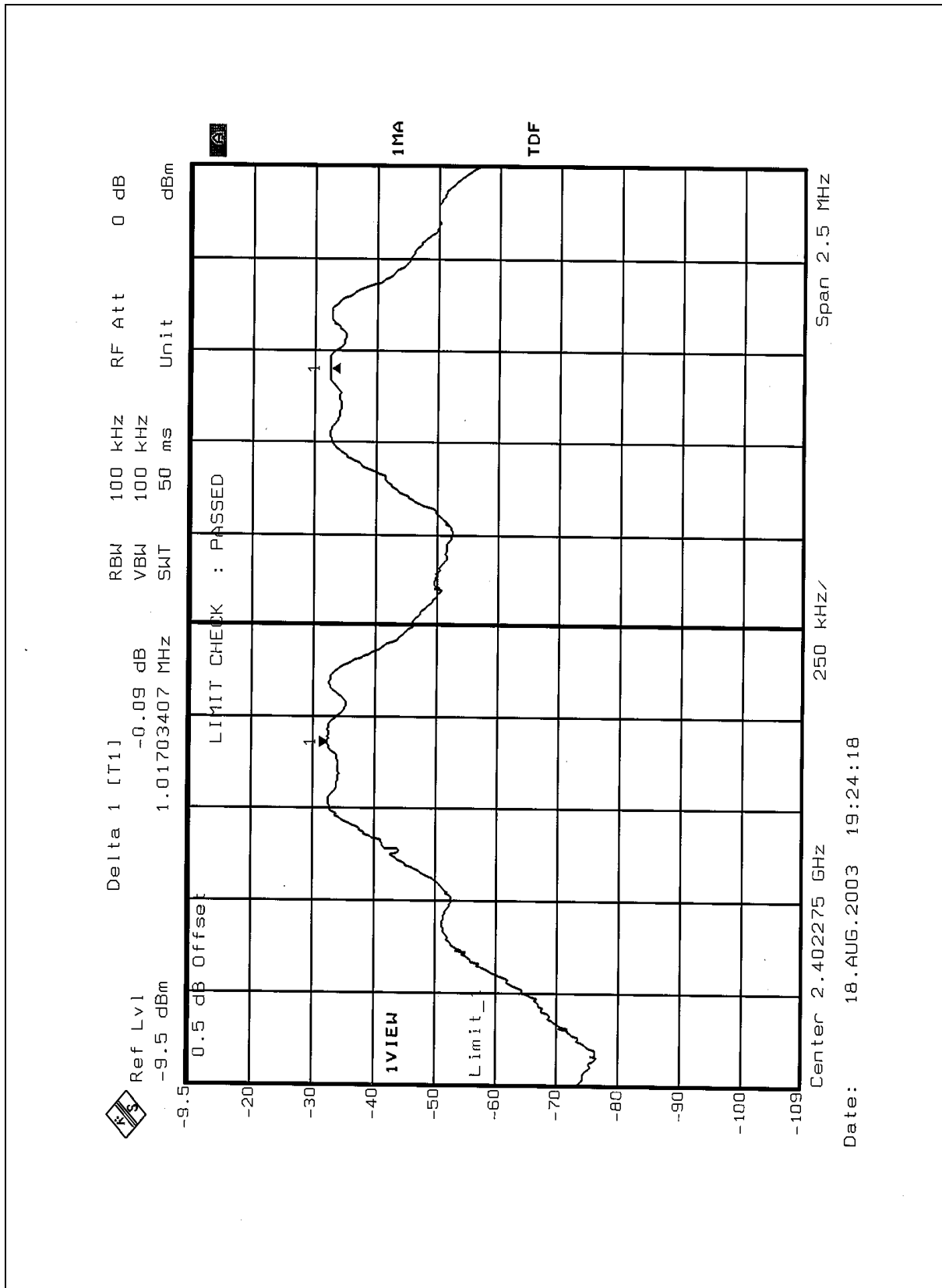


4.5.6 TEST RESULTS

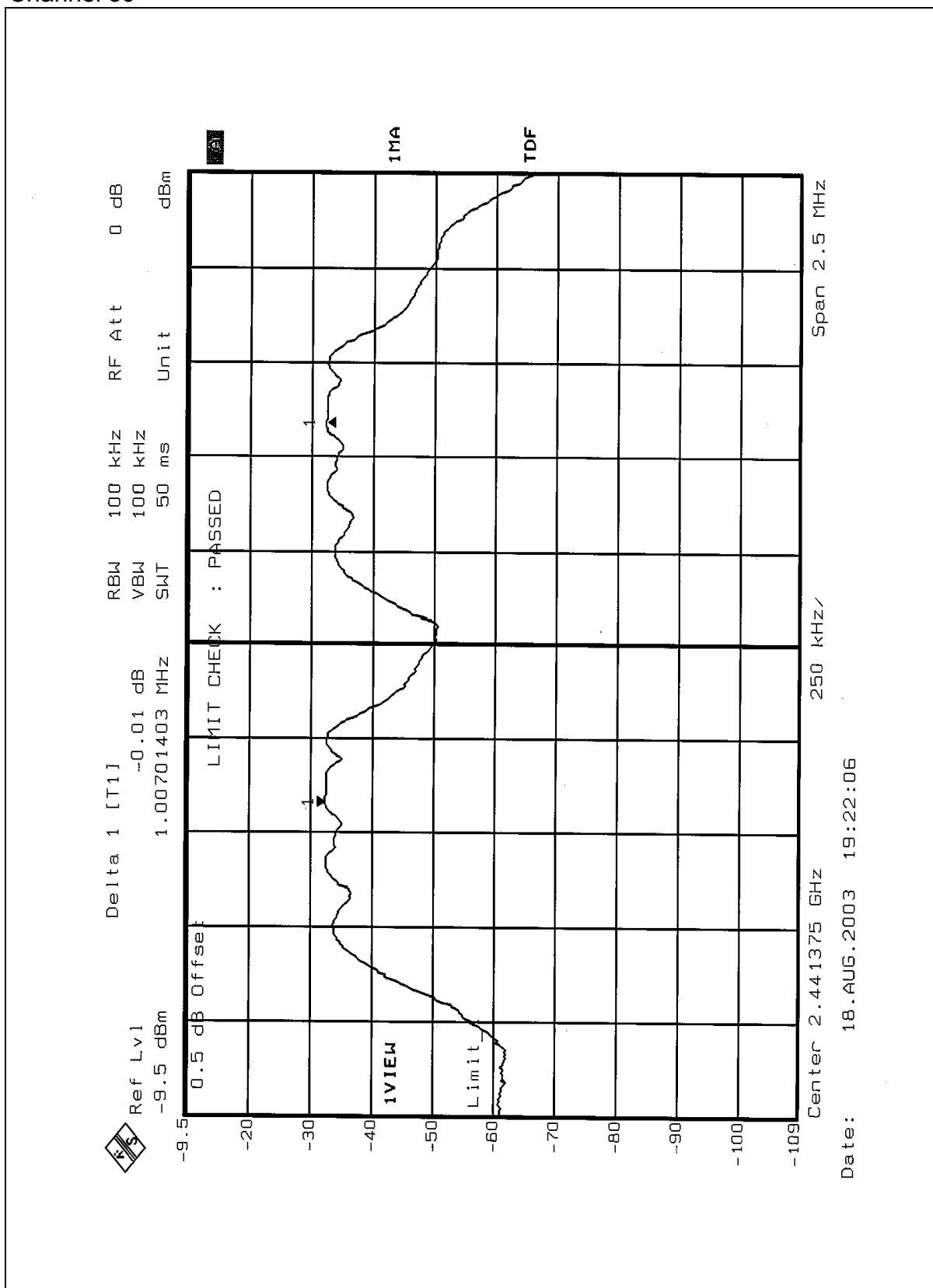
Channel	Frequency (MHz)	Adjacent Channel Separation	Minimum Limit (kHz)	Pass / Fail
0	2402	1MHz	700.40	PASS
39	2441	1MHz	814.63	PASS
78	2480	1MHz	958.92	PASS

The minimum limit is 20dB bandwidth. Test results please refer to next three pages.

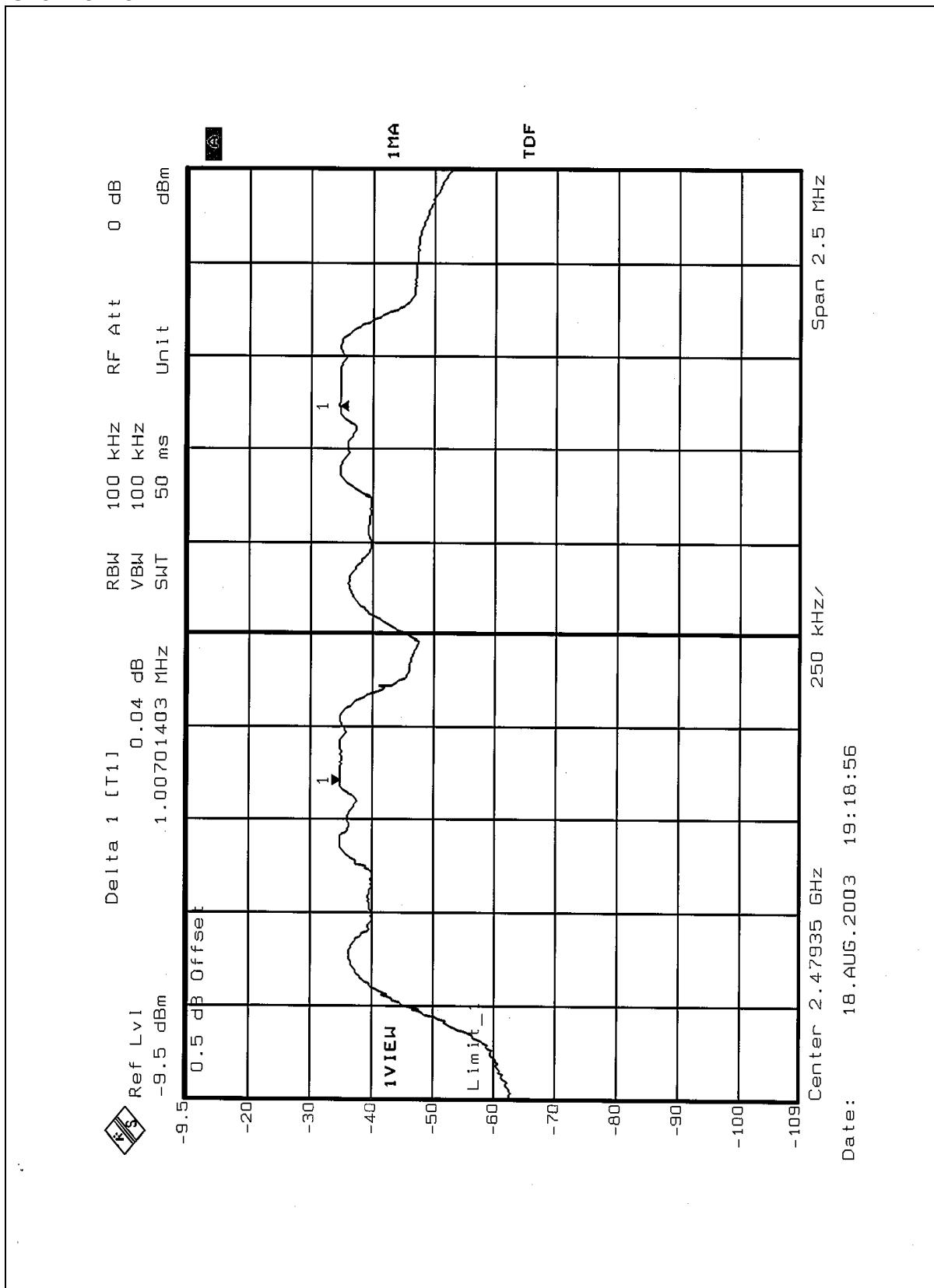
Channel 0



Channel 39



Channel 78



4.6 MAXIMUM PEAK OUTPUT POWER

4.6.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Limit of Maximum Peak Output Power Measurement is 30dBm.

4.6.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
PK PWR MTR SINGLE	E4416A	GB41291763	July 24, 2004
PEAK AND AVERAGE POWER SENSOR	E9327A	US40441181	June 4, 2004

NOTE:

The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

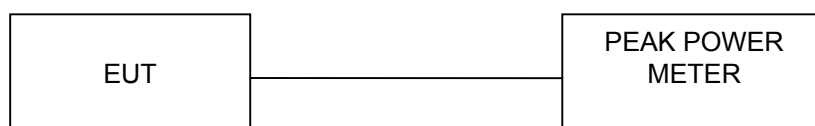
4.6.3 TEST PROCEDURES

1. The EUT was connected to the peak power meter, and measured the output power.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.6.6 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.6.7 TEST RESULTS

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
0	2402	-2.51	30	PASS
39	2441	-2.87	30	PASS
78	2480	-3.12	30	PASS

4.7 RADIATED EMISSION MEASUREMENT

4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
* HP Spectrum Analyzer	8590L	3544A01176	Jun. 10, 2004
* HP Preamplifier	8447D	2944A08485	May. 01, 2004
* HP Preamplifier	8449B	3008A01201	Dec. 01, 2003
* HP Preamplifier	8449B	3008A01292	Aug. 13, 2004
ROHDE & SCHWARZ TEST RECEIVER	ESI7	838496/016	Feb. 23, 2004
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Feb. 13, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Nov. 22, 2003
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
* ADT. Ferrite Clamp	FC18	910043	Oct. 24, 2003
* ADT. Ferrite Clamp	FC18	910044	Oct. 24, 2003
* ADT. Ferrite Clamp	FC18	910045	Oct. 24, 2003
* CHASE BILOG Antenna	CBL6112A	2221	July 26, 2004
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jun 30, 2004
* EMCO Horn Antenna	3115	9312-4192	Mar. 23 2004
* EMCO Turn Table	1060	1115	NA
* CHANCE Tower	CM-AT40	CM-A010	NA
* Software	ADT_Radiated_V5.14	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Jan. 05. 2004
* TIMES RF cable	LMR-600	CABLE-ST5-01	Jan. 05. 2004

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

2. "*" = These equipment are used for the final measurement.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. 5.
5. The VCCI Site Registration No. is R-1039.

4.7.3 TEST PROCEDURES

- a. 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.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

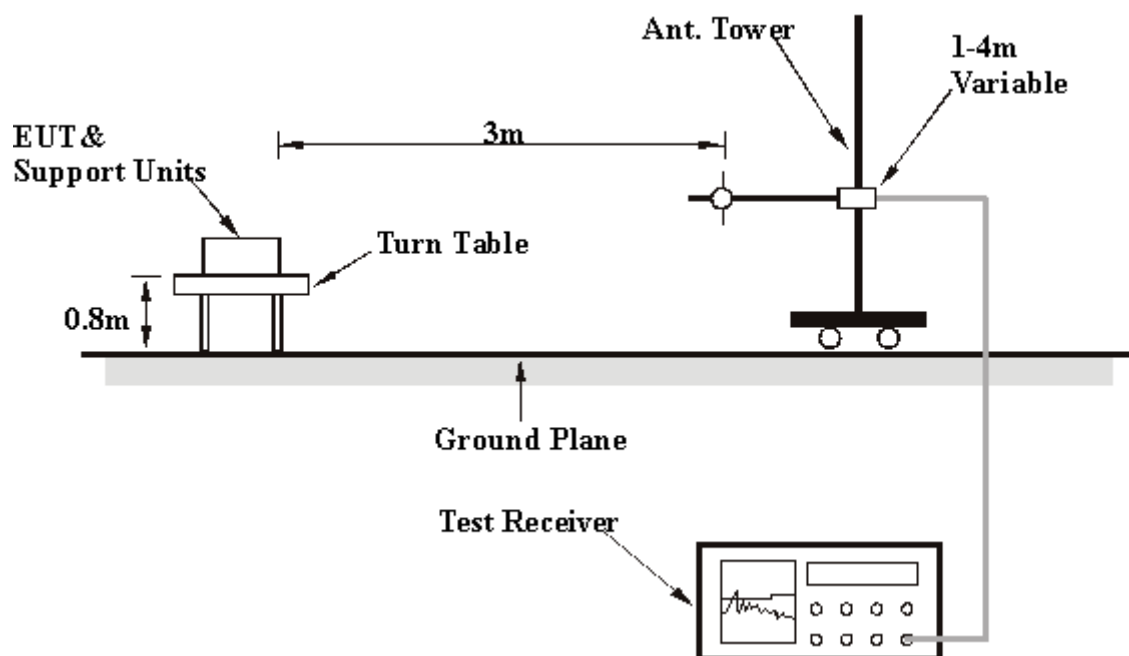
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 300 Hz for Average detection (AV) at frequency above 1GHz.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.7.6 TEST RESULTS (TEST MODE 1)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY: Gray Chang			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	25.8 QP	43.50	-17.70	1.15 H	35	12.30	13.50
2	208.20	27.8 QP	43.50	-15.70	1.30 H	65	16.10	11.70
3	249.04	26.3 QP	46.00	-19.70	1.30 H	138	10.80	15.50
4	261.50	26.8 QP	46.00	-19.20	1.32 H	62	10.00	16.80
5	311.50	26.8 QP	46.00	-19.20	1.10 H	65	9.80	17.00
6	398.39	28.7 QP	46.00	-17.30	1.27 H	226	9.60	19.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.01	28.8 QP	43.50	-14.80	1.37 V	117	15.30	13.50
2	250.55	24.3 QP	46.00	-21.70	1.06 V	123	8.70	15.70
3	309.58	25.6 QP	46.00	-20.40	1.12 V	69	8.60	17.00
4	398.32	29.3 QP	46.00	-16.70	1.22 V	117	10.20	19.10
5	454.96	28.8 QP	46.00	-17.20	1.37 V	169	8.90	19.90
6	635.88	33.4 QP	46.00	-12.60	1.54 V	115	10.60	22.80

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.

4.7.7 TEST RESULTS (TEST MODE 2)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY: Gray Chang			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	30.9 QP	43.50	-12.60	1.95 H	124	17.40	13.50
2	252.08	34.8 QP	46.00	-11.20	1.77 H	254	18.90	15.90
3	312.22	35.9 QP	46.00	-10.10	1.77 H	254	18.90	17.00
4	336.07	32.8 QP	46.00	-13.20	2.14 H	156	15.40	17.40
5	444.58	33.1 QP	46.00	-12.90	1.47 H	321	13.40	19.70
6	636.08	33.8 QP	46.00	-12.20	1.24 H	229	11.00	22.80
7	735.24	30.9 QP	46.00	-15.10	1.24 H	225	7.10	23.80
8	864.22	33.1 QP	46.00	-12.90	1.36 H	214	8.00	25.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.22	36.2 QP	43.50	-7.30	1.47 V	21	22.70	13.50
2	288.00	32.3 QP	46.00	-13.70	2.14 V	11	15.70	16.60
3	398.21	35.2 QP	46.00	-10.80	1.17 V	211	16.10	19.10
4	432.11	36.9 QP	46.00	-9.10	1.13 V	125	17.40	19.50
5	500.42	36.2 QP	46.00	-9.80	1.24 V	65	15.00	21.20
6	636.08	35.0 QP	46.00	-11.00	2.21 V	241	12.20	22.80
7	687.21	33.9 QP	46.00	-12.10	1.54 V	147	11.00	22.90
8	864.22	35.1 QP	46.00	-10.90	1.36 V	214	10.00	25.10

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.

4.7.8 TEST RESULTS (TEST MODE 3)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY: Gray Chang			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	37.8 QP	43.50	-5.70	1.12 H	222	24.30	13.50
2	240.00	33.2 QP	46.00	-12.80	1.25 H	11	18.50	14.70
3	252.98	34.8 QP	46.00	-11.20	1.02 H	311	18.80	16.00
4	312.08	34.9 QP	46.00	-11.10	1.11 H	241	17.90	17.00
5	398.22	34.1 QP	46.00	-11.90	1.47 H	88	15.00	19.10
6	444.55	35.9 QP	46.00	-10.10	1.00 H	288	16.20	19.70
7	516.20	33.9 QP	46.00	-12.10	1.59 H	328	12.70	21.20
8	549.26	31.2 QP	46.00	-14.80	1.11 H	136	10.10	21.10
9	713.66	31.7 QP	46.00	-14.30	1.40 H	158	8.40	23.30

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	36.9 QP	43.50	-6.60	1.06 V	99	23.40	13.50
2	287.66	34.2 QP	46.00	-11.80	1.06 V	192	17.60	16.60
3	398.24	38.9 QP	46.00	-7.10	1.24 V	226	19.80	19.10
4	466.28	32.5 QP	46.00	-13.50	1.88 V	229	12.30	20.20
5	564.98	31.8 QP	46.00	-14.20	1.65 V	32	10.20	21.60
6	615.98	31.8 QP	46.00	-14.20	1.58 V	132	9.10	22.70
7	659.20	32.3 QP	46.00	-13.70	1.18 V	106	9.50	22.80
8	864.90	37.9 QP	46.00	-8.10	1.18 V	136	12.80	25.10

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.

4.7.9 TEST RESULTS (TEST MODE 4)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY: Gray Chang			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.15	30.2 QP	43.50	-13.30	1.18 H	21	16.70	13.50
2	248.36	36.9 QP	46.00	-9.10	1.66 H	291	21.50	15.40
3	312.15	32.9 QP	46.00	-13.10	1.17 H	91	15.90	17.00
4	444.26	33.5 QP	46.00	-12.50	2.00 H	265	13.80	19.70
5	500.12	31.2 QP	46.00	-14.80	1.85 H	11	10.00	21.20
6	546.20	26.9 QP	46.00	-19.10	1.59 H	311	5.80	21.10
7	720.25	36.2 QP	46.00	-9.80	1.28 H	296	12.70	23.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.25	37.1 QP	43.50	-6.40	1.06 V	159	23.60	13.50
2	149.00	33.8 QP	43.50	-9.70	1.02 V	55	22.30	11.50
3	288.10	31.8 QP	46.00	-14.20	1.34 V	240	15.20	16.60
4	393.22	36.8 QP	46.00	-9.20	1.54 V	237	17.90	18.90
5	564.09	30.1 QP	46.00	-15.90	1.89 V	26	8.60	21.50
6	657.29	30.1 QP	46.00	-15.90	1.54 V	132	7.30	22.80
7	864.11	31.2 QP	46.00	-14.80	1.25 V	136	6.10	25.10

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.

4.7.10 TEST RESULTS (TEST MODE 5)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY: Gray Chang			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.03	32.2 QP	43.50	-11.20	1.00 H	214	18.80	13.50
2	240.00	31.5 QP	46.00	-14.50	1.41 H	249	16.80	14.70
3	251.99	37.0 QP	46.00	-9.00	1.30 H	351	21.20	15.80
4	270.35	29.5 QP	46.00	-16.50	1.14 H	149	13.10	16.40
5	288.06	30.3 QP	46.00	-15.70	1.43 H	134	13.70	16.60
6	312.04	36.5 QP	46.00	-9.50	1.26 H	114	19.50	17.00
7	398.34	32.7 QP	46.00	-13.30	1.31 H	102	13.60	19.10
8	444.47	29.3 QP	46.00	-16.70	1.45 H	303	9.60	19.70
9	468.22	31.8 QP	46.00	-14.20	1.32 H	190	11.50	20.30
10	500.74	34.0 QP	46.00	-12.00	1.28 H	133	12.80	21.20
11	516.07	32.3 QP	46.00	-13.70	1.35 H	258	11.10	21.20
12	549.09	30.0 QP	46.00	-16.00	1.78 H	283	9.00	21.10
13	713.65	29.3 QP	46.00	-16.70	1.50 H	189	6.00	23.30

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	37.4 QP	43.50	-6.10	1.39 V	247	23.90	13.50
2	240.04	32.1 QP	46.00	-13.90	1.14 V	159	17.50	14.70
3	251.96	30.5 QP	46.00	-15.50	1.44 V	80	14.60	15.80
4	288.02	29.6 QP	46.00	-16.40	1.39 V	235	13.00	16.60
5	300.05	29.4 QP	46.00	-16.60	1.09 V	161	12.60	16.80
6	398.34	30.9 QP	46.00	-15.10	1.71 V	161	11.90	19.10
7	439.36	29.6 QP	46.00	-16.40	1.30 V	266	10.00	19.60
8	468.04	31.5 QP	46.00	-14.50	1.06 V	44	11.20	20.30
9	500.57	34.2 QP	46.00	-11.80	1.06 V	97	13.00	21.20
10	516.05	32.5 QP	46.00	-13.50	1.21 V	136	11.30	21.20
11	615.34	30.5 QP	46.00	-15.50	1.36 V	164	7.80	22.70

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.

4.7.11 TEST RESULTS (TEST MODE 6)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY: Gray Chang			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	30.8 QP	43.50	-12.70	1.95 H	53	17.30	13.50
2	208.24	31.4 QP	43.50	-12.10	1.24 H	17	19.70	11.70
3	240.00	32.0 QP	46.00	-14.00	1.46 H	158	17.30	14.70
4	252.05	34.3 QP	46.00	-11.70	1.50 H	99	18.40	15.90
5	288.00	31.6 QP	46.00	-14.40	1.12 H	60	15.00	16.60
6	312.10	35.7 QP	46.00	-10.30	1.12 H	37	18.70	17.00
7	336.03	32.2 QP	46.00	-13.80	1.44 H	128	14.70	17.40
8	376.04	29.2 QP	46.00	-16.80	1.15 H	182	10.80	18.40
9	400.45	31.3 QP	46.00	-14.70	1.06 H	131	12.20	19.10
10	444.38	33.5 QP	46.00	-12.50	1.44 H	75	13.80	19.70
11	636.04	33.5 QP	46.00	-12.50	1.55 H	129	10.70	22.80
12	735.33	30.1 QP	46.00	-15.90	1.20 H	143	6.30	23.80
13	863.98	33.8 QP	46.00	-12.20	1.92 H	55	8.70	25.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.01	35.0 QP	43.50	-8.50	1.43 V	230	21.50	13.50
2	228.13	29.8 QP	46.00	-16.20	1.16 V	93	16.20	13.60
3	240.02	28.4 QP	46.00	-17.60	1.20 V	73	13.70	14.70
4	251.99	25.4 QP	46.00	-20.60	1.08 V	160	9.50	15.80
5	288.01	31.1 QP	46.00	-14.90	1.69 V	49	14.50	16.60
6	312.00	27.6 QP	46.00	-18.40	1.16 V	109	10.60	17.00
7	398.33	34.9 QP	46.00	-11.10	1.61 V	138	15.80	19.10
8	432.00	36.1 QP	46.00	-9.90	1.48 V	114	16.60	19.50
9	500.60	35.4 QP	46.00	-10.60	1.05 V	201	14.20	21.20
10	636.06	34.8 QP	46.00	-11.20	1.48 V	120	12.00	22.80
11	687.28	32.2 QP	46.00	-13.80	1.12 V	31	9.30	22.90
12	864.00	34.9 QP	46.00	-11.10	1.00 V	127	9.80	25.10

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.

4.7.12 TEST RESULTS (TEST MODE 7)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below1000 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY: Gray Chang			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.12	37.2 QP	43.50	-6.30	1.51 H	118	23.70	13.50
2	222.24	30.1 QP	46.00	-15.90	1.49 H	253	17.10	13.00
3	240.04	33.9 QP	46.00	-12.10	1.33 H	209	19.20	14.70
4	252.00	34.0 QP	46.00	-12.00	1.49 H	117	18.10	15.80
5	288.00	34.3 QP	46.00	-11.70	1.21 H	270	17.70	16.60
6	312.01	34.3 QP	46.00	-11.70	1.05 H	168	17.30	17.00
7	398.34	34.8 QP	46.00	-11.20	1.21 H	329	15.70	19.10
8	444.48	35.6 QP	46.00	-10.40	1.12 H	56	15.90	19.70
9	500.58	30.9 QP	46.00	-15.10	1.34 H	107	9.70	21.20
10	516.08	33.1 QP	46.00	-12.90	1.11 H	271	11.90	21.20
11	549.00	30.9 QP	46.00	-15.10	1.58 H	140	9.80	21.10
12	713.61	30.4 QP	46.00	-15.60	1.36 H	98	7.10	23.30

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.12	36.1 QP	43.50	-7.40	1.06 V	64	22.70	13.50
2	150.73	30.2 QP	43.50	-13.30	1.18 V	111	18.80	11.40
3	240.02	29.8 QP	46.00	-16.20	1.08 V	124	15.10	14.70
4	250.58	30.1 QP	46.00	-15.90	1.28 V	141	14.40	15.70
5	287.99	33.9 QP	46.00	-12.10	1.09 V	55	17.20	16.60
6	312.08	26.3 QP	46.00	-19.70	1.05 V	70	9.30	17.00
7	398.34	38.4 QP	46.00	-7.60	1.83 V	244	19.30	19.10
8	432.04	31.9 QP	46.00	-14.10	1.40 V	135	12.40	19.50
9	466.93	32.2 QP	46.00	-13.80	1.34 V	257	12.00	20.30
10	564.04	30.9 QP	46.00	-15.10	1.36 V	101	9.30	21.50
11	615.45	30.6 QP	46.00	-15.40	1.39 V	183	7.80	22.70
12	658.70	31.1 QP	46.00	-14.90	1.19 V	121	8.30	22.80
13	864.00	37.1 QP	46.00	-8.90	1.07 V	24	11.90	25.10

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.

4.7.13 TEST RESULTS (TEST MODE 8)

EUT	Bluetooth Digital Pen	MODEL	SU-1B
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY: Gray Chang			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	25.8 QP	43.50	-17.70	1.15 H	35	12.30	13.50
2	208.20	27.8 QP	43.50	-15.70	1.30 H	65	16.10	11.70
3	249.04	26.3 QP	46.00	-19.70	1.30 H	138	10.80	15.50
4	261.50	26.8 QP	46.00	-19.20	1.32 H	62	10.00	16.80
5	311.50	26.8 QP	46.00	-19.20	1.10 H	65	9.80	17.00
6	398.39	28.7 QP	46.00	-17.30	1.27 H	226	9.60	19.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.01	28.8 QP	43.50	-14.80	1.37 V	117	15.30	13.50
2	250.55	24.3 QP	46.00	-21.70	1.06 V	123	8.70	15.70
3	309.58	25.6 QP	46.00	-20.40	1.12 V	69	8.60	17.00
4	398.32	29.3 QP	46.00	-16.70	1.22 V	117	10.20	19.10
5	454.96	28.8 QP	46.00	-17.20	1.37 V	169	8.90	19.90
6	635.88	33.4 QP	46.00	-12.60	1.54 V	115	10.60	22.80

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.

4.7.14 TEST RESULTS

EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 0	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	TESTED BY: Gray Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2402.00	83.8 PK			1.40 H	231	54.10	29.60
1	*2402.00	53.3 AV			1.40 H	231	23.70	29.60
2	4803.00	54.0 PK	74.00	-20.00	1.08 H	198	18.80	35.20
2	4803.00	24.0 AV	54.00	-30.00	1.08 H	198	-11.20	35.20
3	7205.00	52.9 PK	74.00	-21.10	1.18 H	31	11.90	41.00
3	7205.00	22.9 AV	54.00	-31.10	1.18 H	31	-18.10	41.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2402.00	84.9 PK			2.07 V	185	55.30	29.60
1	*2402.00	54.9 AV			2.07 V	185	25.30	29.60
2	4804.00	51.3 PK	74.00	-22.70	2.04 V	115	16.20	35.20
2	4804.00	21.3 AV	54.00	-32.70	2.04 V	115	-13.80	35.20
3	7205.00	54.1 PK	74.00	-19.90	1.71 V	115	13.10	41.00
3	7205.00	24.1 AV	54.00	-29.90	1.71 V	115	-16.90	41.00

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.
6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625*5 per 247 ms per channel.
Therefore, the duty cycle be equal to: $20\log(3.125/100) = -30\text{dB}$
7. Average value = peak reading $-20\log(\text{duty cycle})$

EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 39	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	TESTED BY: Gray Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	83.3 PK			1.43 H	181	53.50	29.80
1	*2441.00	53.3 AV			1.43 H	181	23.50	29.80
2	4882.00	53.9 PK	74.00	-20.10	1.27 H	125	18.40	35.50
2	4882.00	23.9 AV	54.00	-30.10	1.27 H	125	-11.60	35.50
3	7323.00	52.4 PK	74.00	-21.60	1.04 H	99	11.10	41.30
3	7323.00	22.4 AV	54.00	-31.60	1.04 H	99	-18.90	41.30

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	86.9 PK			1.57 V	12	57.20	29.80
1	*2441.00	56.9 AV			1.57 V	12	27.10	29.80
2	4882.00	51.6 PK	74.00	-22.40	1.69 V	185	16.10	35.50
2	4882.00	21.6 AV	54.00	-32.40	1.69 V	185	-13.90	35.50
3	7323.00	53.6 PK	74.00	-20.40	1.04 V	99	12.30	41.30
3	7323.00	23.6 AV	54.00	-30.40	1.04 V	99	-17.70	41.30

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. “ * ” : Fundamental frequency
5. The other emission levels were very low against the limit.
6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625*5 per 247 ms per channel.
Therefore, the duty cycle be equal to: $20\log(3.125/100) = -30\text{dB}$
7. Average value = peak reading $-20\log(\text{duty cycle})$

EUT	Bluetooth Digital Pen	MODEL	SU-1B
MODE	Channel 78	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 991 hPa	TESTED BY:	Gray Chang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	82.0 PK			1.46 H	211	52.10	29.90
1	*2480.00	52.0 AV			1.46 H	211	25.10	29.90
2	4959.00	53.2 PK	74.00	-20.80	1.34 H	139	17.40	35.80
2	4959.00	23.2 AV	54.00	-30.80	1.34 H	139	-6.60	35.80
3	7445.00	51.3 PK	74.00	-22.70	1.27 H	202	9.70	41.60
3	7445.00	21.3 AV	54.00	-32.70	1.27 H	202	-20.30	41.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2480.00	88.2 PK			1.08 V	312	58.30	29.90
1	2480.00	58.2 AV			1.08 V	312	28.30	29.90
2	4960.00	55.4 PK	74.00	-18.60	1.37 V	231	19.60	35.80
2	4960.00	25.4 AV	54.00	-28.60	1.37 V	231	-10.40	35.80
3	7445.00	52.6 PK	74.00	-21.40	1.27 V	202	11.00	41.60
3	7445.00	22.6 AV	54.00	-31.40	1.27 V	202	-19.00	41.60

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor = Ant. Factor + Cable loss
3. Margin value = Emission level - Limit value
4. “ * ” : Fundamental frequency
5. The other emission levels were very low against the limit.
6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625*5 per 247 ms per channel.
Therefore, the duty cycle be equal to: $20\log(3.125/100) = -30\text{dB}$
7. Average value = peak reading $-20\log(\text{duty cycle})$

4.8 BAND EDGES MEASUREMENT

4.8.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100KHz RB).

4.8.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004

NOTE:

The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

4.8.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 Hz bandwidth from band edge. The band edges was measured and recorded.

4.8.4 DEVIATION FROM TEST STANDARD

No deviation

4.8.5 EUT OPERATING CONDITION

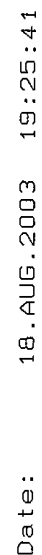
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

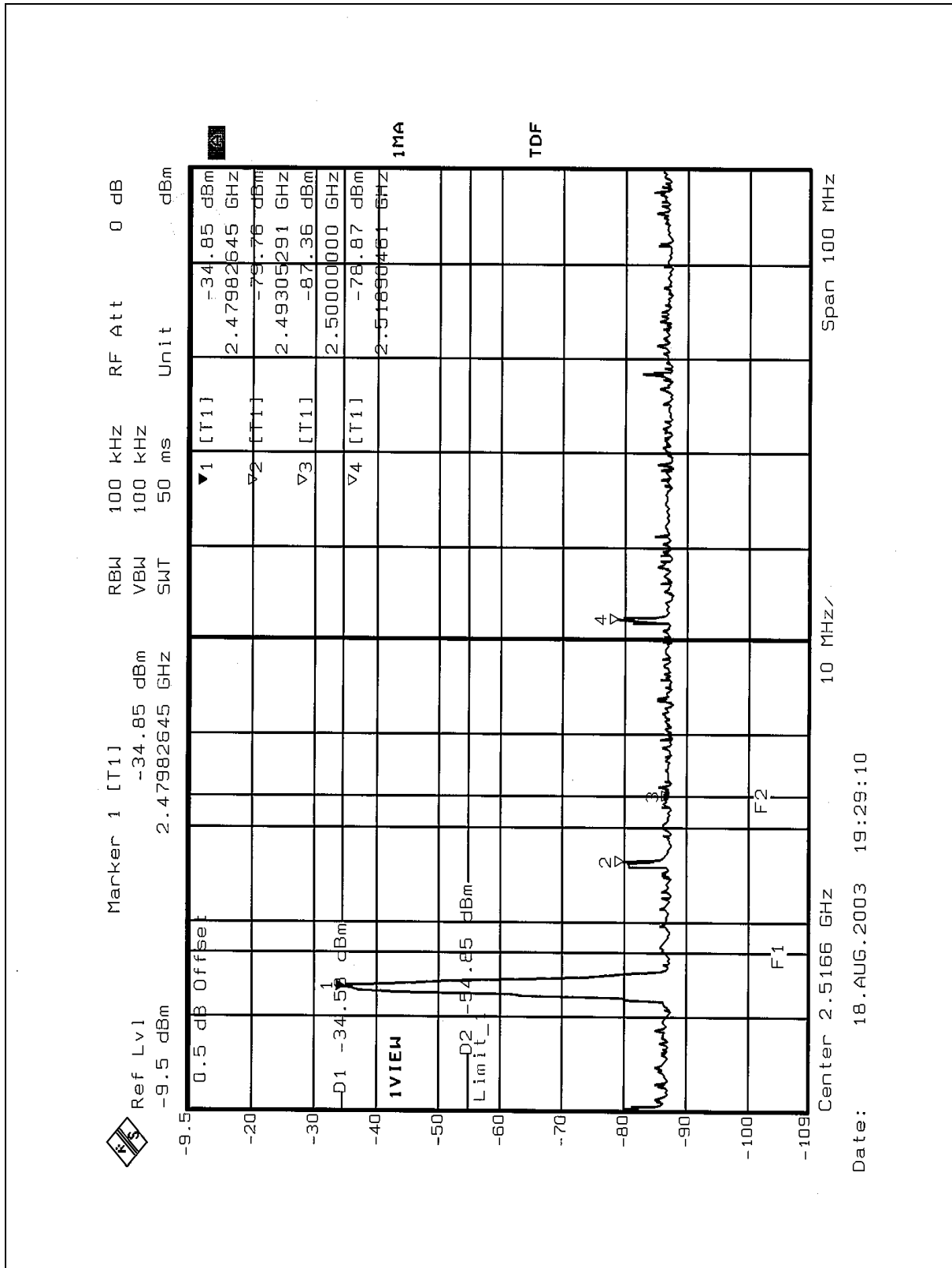
4.8.6 TEST RESULTS

The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

NOTE1: The band edge emission plot on the following first page shows 44.63dB delta between carrier maximum power and local maximum emission in restrict band (2.390GHz). The emission of carrier strength list in the test result of channel 0 at the item 4.7.14 is 54.9dBuV/m, so the maximum field strength in restrict band is $54.9 - 44.63 = 10.27$ dBuV/m which is under 54 dBuV/m limit.

NOTE2: The band edge emission plot on the following second page shows 44.91dB delta between carrier maximum power and local maximum emission in restrict band (2.493GHz). The emission of carrier strength list in the test result of channel 78 at the item 4.7.14 is 58.2dBuV/m, so the maximum field strength in restrict band is $58.2 - 44.91 = 13.29$ dBuV/m which is under 54 dBuV/m limit.







4.9 ANTENNA REQUIREMENT

4.9.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.9.2 ANTENNA CONNECTED CONSTRUCTION

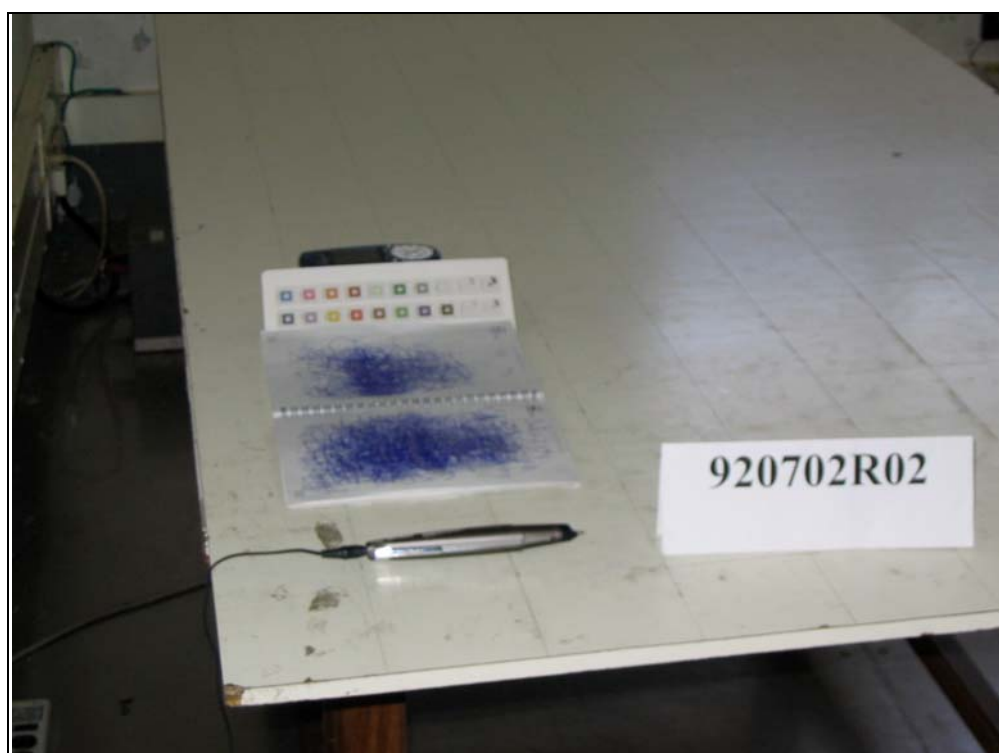
The antenna used in this product is F Type Antenna. There is no Antenna connector. The maximum Gain of this antenna is only 0.3dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST (TEST MODE 3)



(TEST MODE 4)



(TEST MODE 5)



(TEST MODE 6)



(TEST MODE 7)



(TEST MODE 8)



RADIATED EMISSION TEST (TEST MODE 1)



(TEST MODE 2)



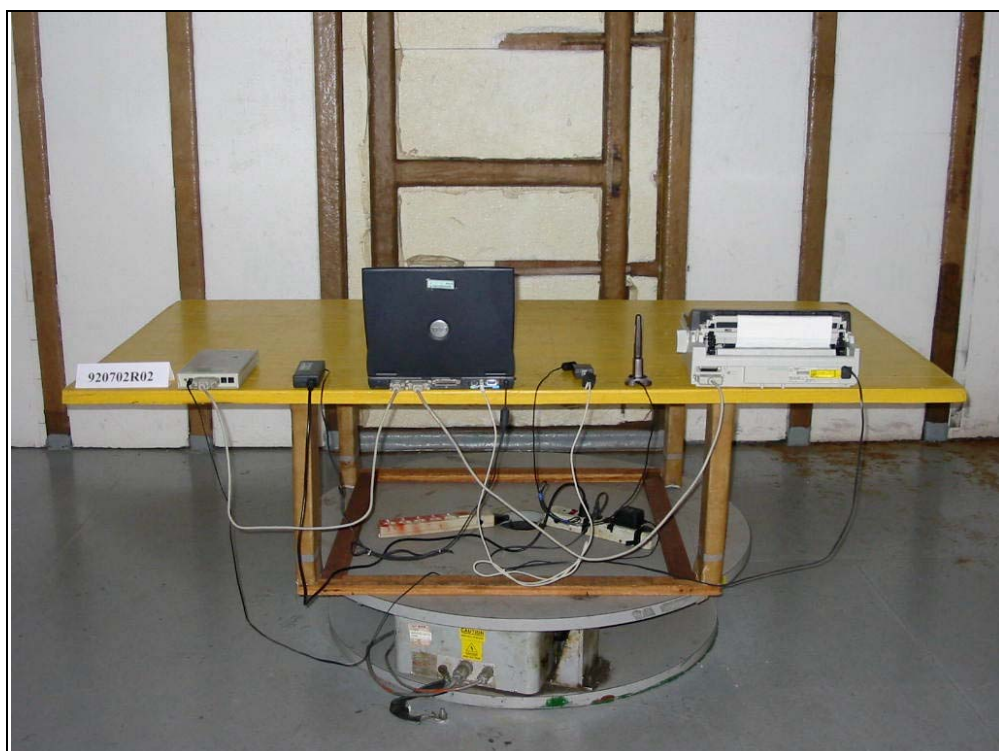
(TEST MODE 3)



(TEST MODE 4)



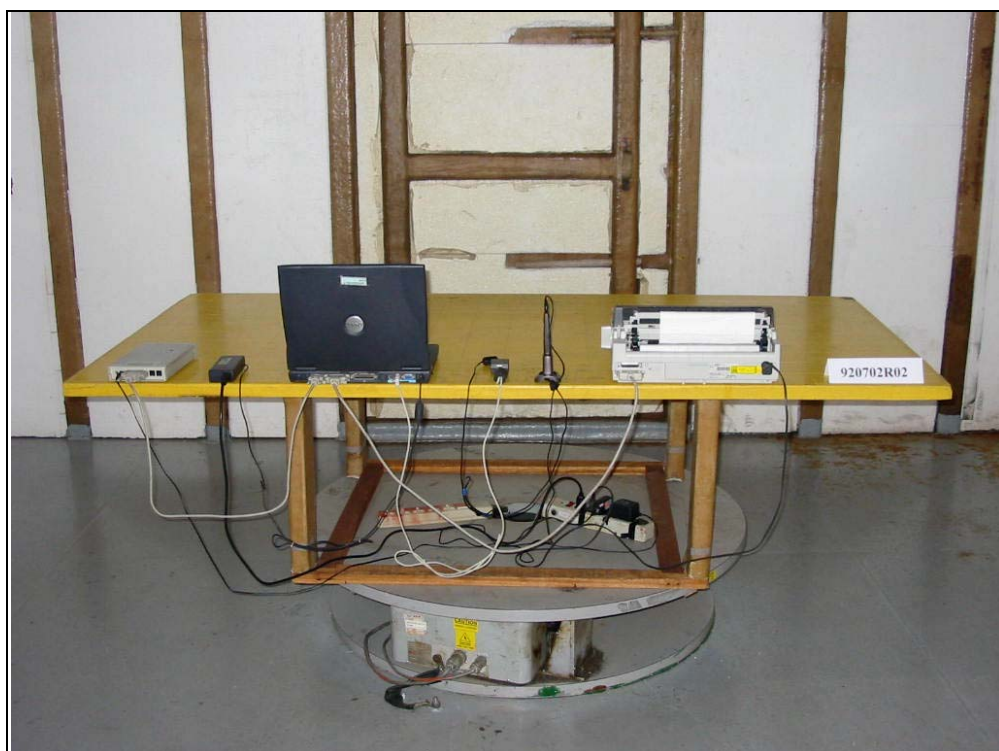
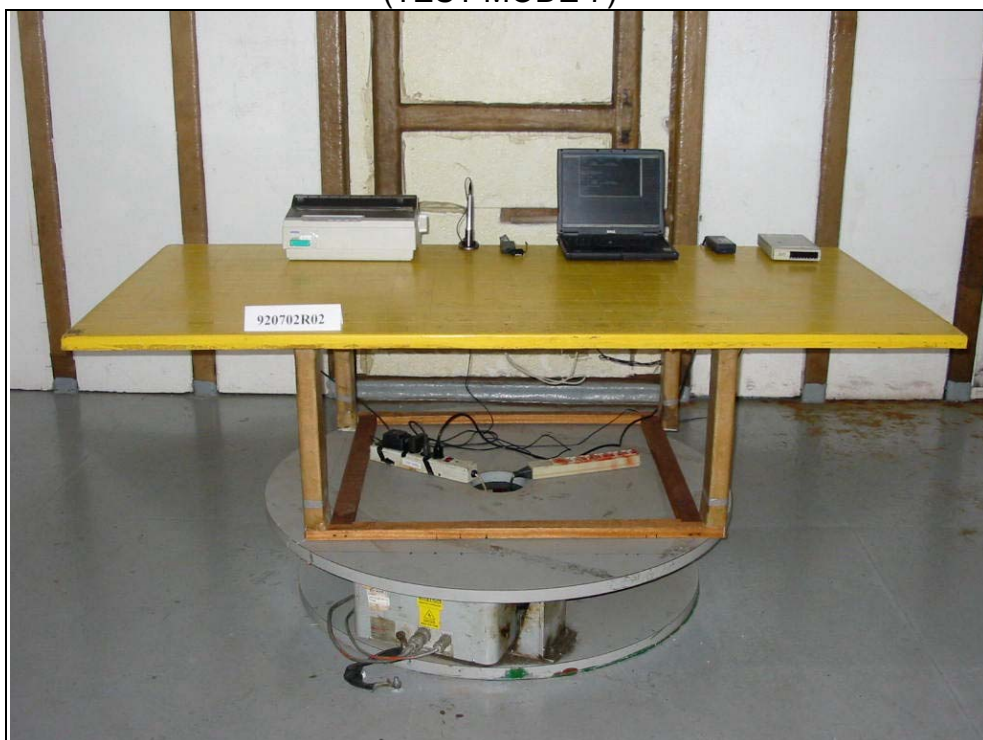
(TEST MODE 5)



(TEST MODE 6)



(TEST MODE 7)



(TEST MODE 8)



6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
New Zealand	MoC
Norway	NEMKO
R.O.C.	BSMI, DGT, CNLA

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.