FCC TEST REPORT

REPORT NO.: RF910614R01
MODEL NO.: BT-0002M
(The other models please refer to page 6)
RECEIVED: June 14, 2002
TESTED: June 17 ~ June 21, 2002

APPLICANT: CC&C TECHNOLOGIES INC.
ADDRESS: 8F, 150, Jian Yi Road, Chung Ho City, Taipei, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation
LAB LOCATION: 47 14th Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.

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0528
ILAC MRA

Lab Code: 200102-0

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1 CERTIFICATION

PRODUCT :	Bluetooth Module
BRAND NAME :	CC&C
MODEL NO. :	BT-0002M
	(The other models please refer to page 6)
APPLICANT :	CC&C TECHNOLOGIES INC.
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 June 17 ~ June 21, 2002. 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.

CHECKED BY: Rennie Wang , **DATE:** June 25, 2002

Rennie Wang

APPROVED BY: Alan Lane , **DATE:** June 25, 2002

Dr. Alan Lane
Manager

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 Limit: 48dBuV	PASS	Meet the requirement of limit Minimum passing margin is –7.37dBuV at 25.23 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 –11.2dBuV at 80.00MHz
15.247(c)	Band Edge Measurement	PASS	Meet the requirement of limit

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Bluetooth Module
MODEL NO.	BT-0002M BT-0002 BT-0002MS BT-0002A BT-0002B
POWER SUPPLY	5.0VDC from host equipment
MODULATION TYPE	FHSS (GFSK)
FREQUENCY RANGE	2402MHz ~ 2480MHz
NUMBER OF CHANNEL	79
OUTPUT POWER	3.23dBm
ANTENNA TYPE	Inverted F Antenna, Printed Dipole Antenna
DATA CABLE	NA
I/O PORTS	USB
ASSOCIATED DEVICES	NA

NOTE:

1. Five models are identical expect for their model number due to marketing requirement.

2. There are two sets of antenna provided to this EUT.

3. The details about two antennas:

	ANTENNA TYPE	ANTENNA GAIN
1	Inverted F	-2dBi
2	Printed Dipole	-2dBi

4. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

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

Two test results were provided to this EUT. The test result A was for Inverted F Antenna, and the test result B was for Printed Dipole Antenna.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC CFR 47 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	PP01L	TW-09C748-12800-19O-B220	FCC DoC APPROVED
2	PRINTER	EPSON	LQ-300+	DCGY017096	FCC DoC APPROVED
3	MODEM	ACEEX	1414	980020503	IFAXDM1414

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

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

4 TEST PROCEDURES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.45 – 30	48	-	48	-

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	847793/022	Mar. 12, 2003
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	828075/003	July 19, 2002
ROHDE & SCHWARZ 200-A Four-line V-Network	ENV4200	830326/018	Oct. 25, 2002
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Dec. 2, 2002
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Dec. 2, 2002
EMCO-L.I.S.N. (for peripheral)	3825/2	90031627	July 19, 2002
Software	Cond-V2L	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C05.01	July 19, 2002
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-305	Feb. 20, 2003
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-306	Feb. 20, 2003
Shielded Room	Site 5	ADT-C05	NA
VCCI Site Registration No.	Site 5	C-1093	NA

NOTE: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.

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

3. "*": These equipment are used for conducted telecom port test only (if tested).

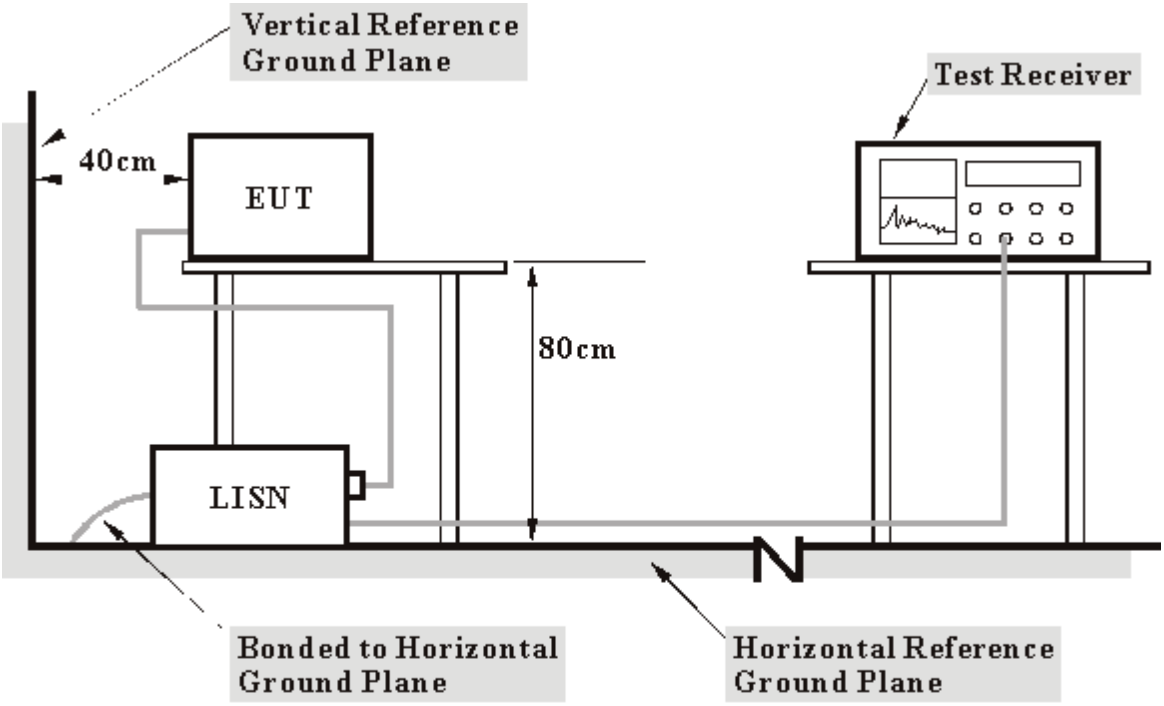
4.1.3 TEST PROCEDURES

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 450 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 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.

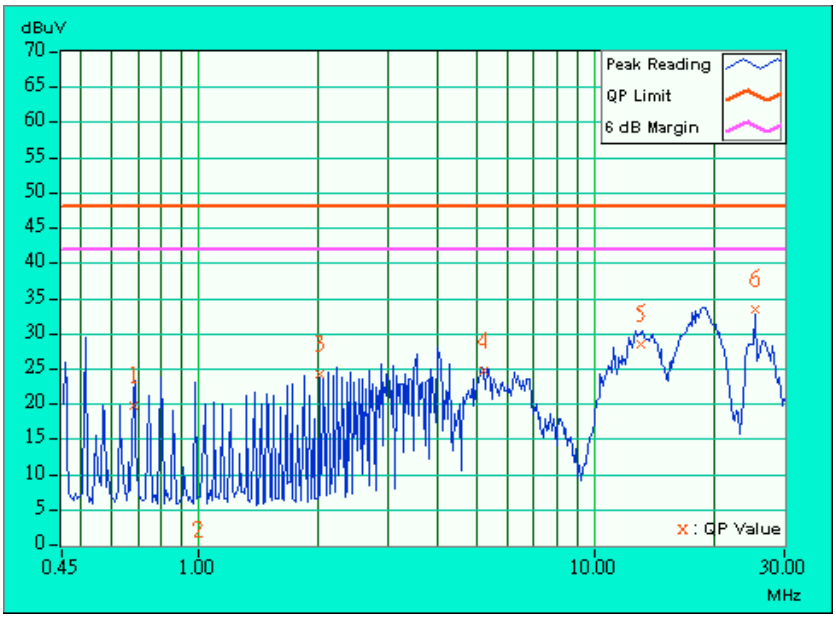
4.1.5 TEST RESULTS (A)

EUT	Bluetooth Module	**MODEL**	BT-0002M
CHANNEL	0	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.684	0.15	18.71	-	18.86	-	48.00	-	-29.14	-
2	0.997	0.20	-3.27	-	-3.07	-	48.00	-	-51.07	-
3	2.008	0.20	23.06	-	23.26	-	48.00	-	-24.74	-
4	5.219	0.44	23.43	-	23.87	-	48.00	-	-24.13	-
5	13.008	0.66	27.29	-	27.95	-	48.00	-	-20.05	-
6	25.227	1.20	32.32	-	33.52	-	48.00	-	-14.48	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

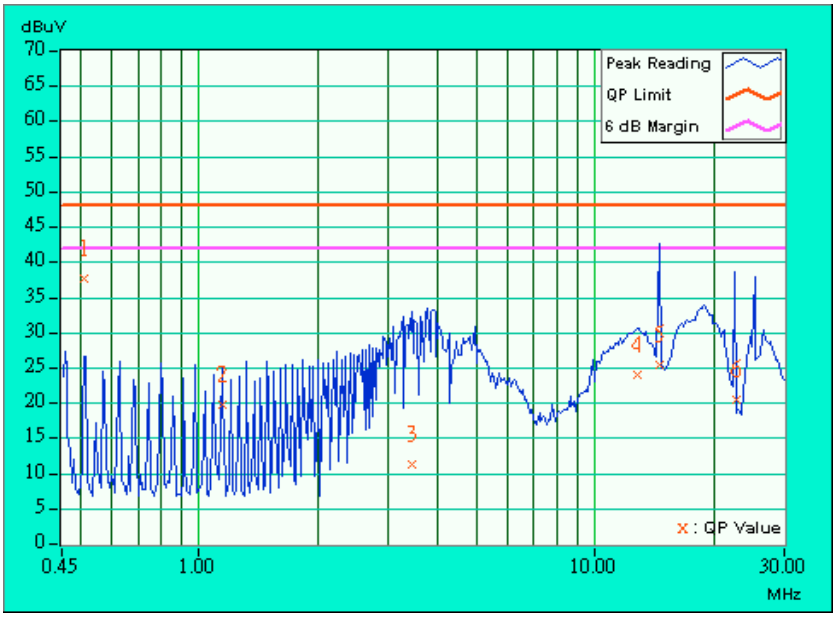


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 0	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.513	0.12	36.97	-	37.09	-	48.00	-	-10.91	-
2	1.145	0.20	19.06	-	19.26	-	48.00	-	-28.74	-
3	3.434	0.27	10.49	-	10.76	-	48.00	-	-37.24	-
4	12.816	0.46	23.23	-	23.69	-	48.00	-	-24.31	-
5	14.523	0.49	24.80	-	25.29	-	48.00	-	-22.71	-
6	22.723	0.75	19.66	-	20.41	-	48.00	-	-27.59	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

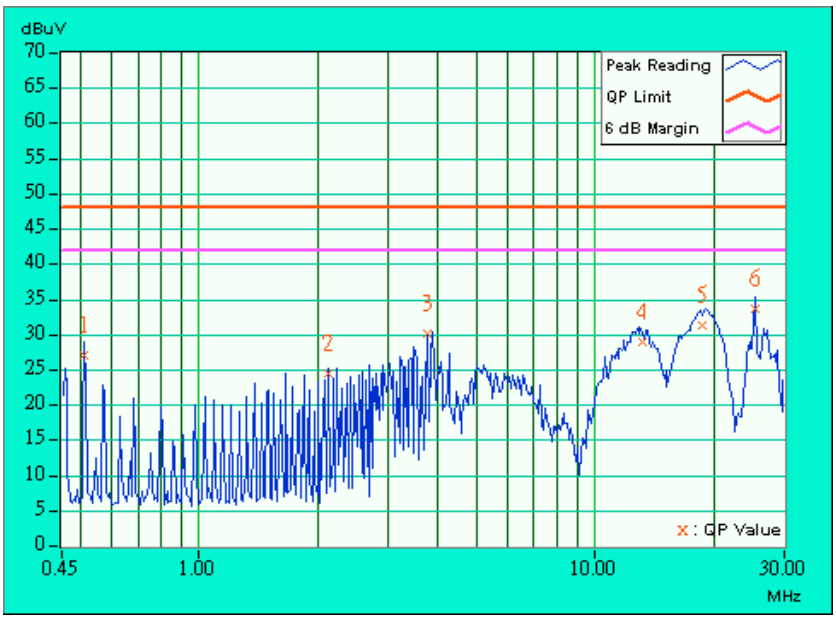


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 39	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.513	0.12	25.85	-	25.97	-	48.00	-	-22.03	-
2	2.121	0.21	23.19	-	23.40	-	48.00	-	-24.60	-
3	3.781	0.38	28.96	-	29.34	-	48.00	-	-18.66	-
4	13.184	0.66	27.71	-	28.37	-	48.00	-	-19.63	-
5	18.688	0.92	30.04	-	30.96	-	48.00	-	-17.04	-
6	25.227	1.20	32.52	-	33.72	-	48.00	-	-14.28	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

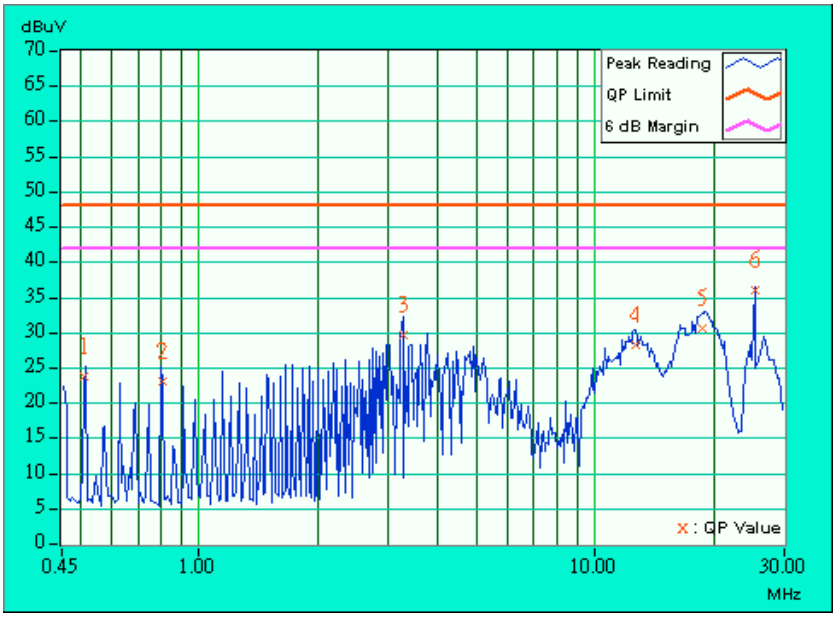


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 39	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (Uv)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.513	0.12	23.20	-	23.32	-	48.00	-	-24.68	-
2	0.805	0.17	22.48	-	22.65	-	48.00	-	-25.35	-
3	3.266	0.26	28.88	-	29.14	-	48.00	-	-18.86	-
4	12.605	0.45	27.55	-	28.00	-	48.00	-	-20.00	-
5	18.625	0.72	29.83	-	30.55	-	48.00	-	-17.45	-
6	25.230	0.70	35.38	-	36.08	-	48.00	-	-11.92	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

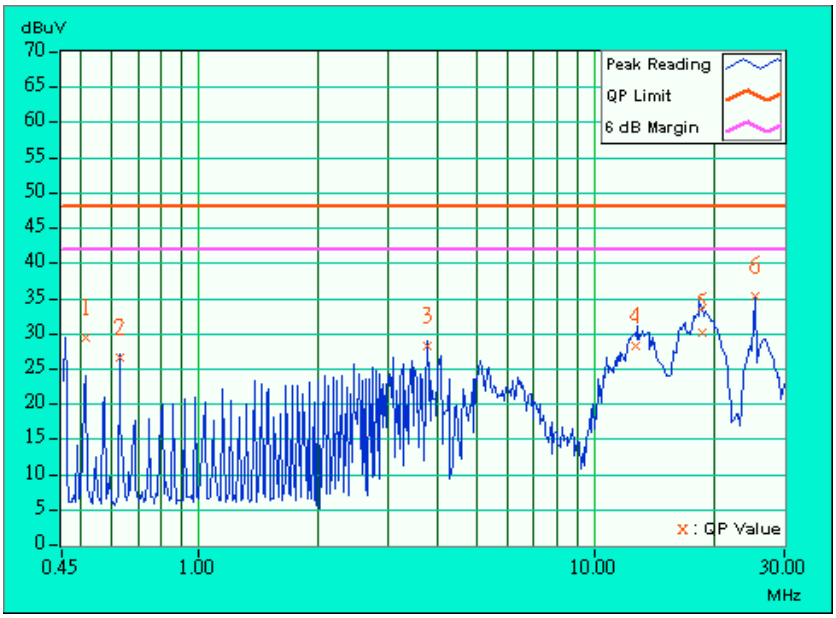


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 78	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.516	0.12	28.26	-	28.38	-	48.00	-	-19.62	-
2	0.630	0.14	25.54	-	25.68	-	48.00	-	-22.32	-
3	3.785	0.38	27.06	-	27.44	-	48.00	-	-20.56	-
4	12.664	0.65	27.01	-	27.66	-	48.00	-	-20.34	-
5	18.672	0.92	29.05	-	29.97	-	48.00	-	-18.03	-
6	25.227	1.20	34.09	-	35.29	-	48.00	-	-12.71	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

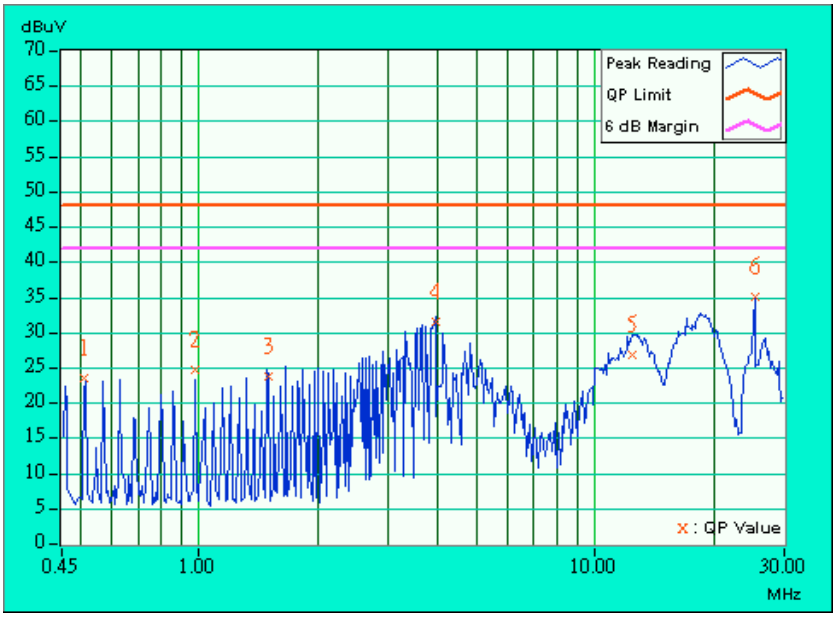


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 78	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Netural (N)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.513	0.12	22.82	-	22.94	-	48.00	-	-25.06	-
2	0.973	0.20	24.08	-	24.28	-	48.00	-	-23.72	-
3	1.492	0.20	23.09	-	23.29	-	48.00	-	-24.71	-
4	3.953	0.30	30.81	-	31.11	-	48.00	-	-16.89	-
5	12.375	0.45	26.24	-	26.69	-	48.00	-	-21.31	-
6	25.227	0.70	34.39	-	35.09	-	48.00	-	-12.91	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.



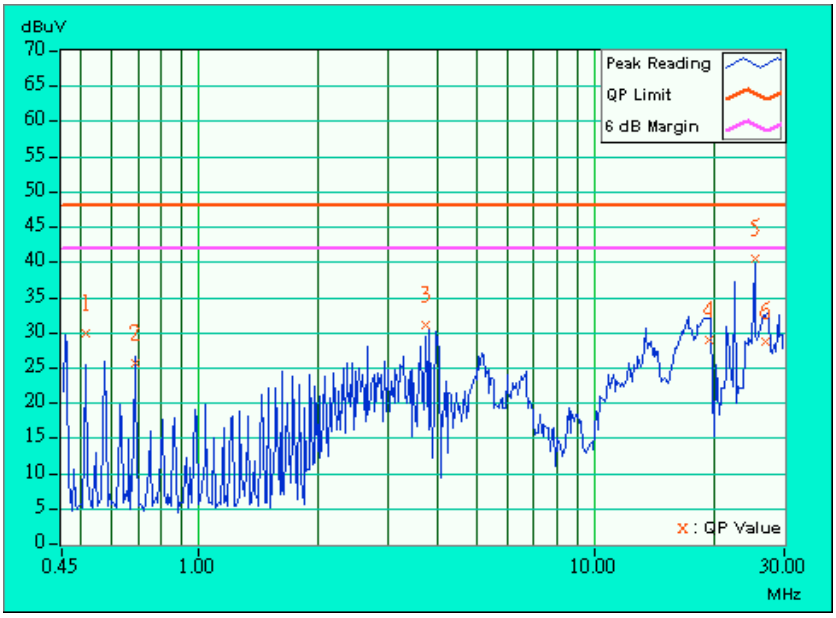
4.1.6 TEST RESULTS (B)

EUT	Bluetooth Module	**MODEL**	BT-0002M
CHANNEL	0	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.516	0.12	28.80	-	28.92	-	48.00	-	-19.08	-
2	0.688	0.15	24.38	-	24.53	-	48.00	-	-23.47	-
3	3.742	0.37	29.95	-	30.32	-	48.00	-	-17.68	-
4	19.301	0.96	27.75	-	28.71	-	48.00	-	-19.29	-
5	25.230	1.20	39.41	-	40.61	-	48.00	-	-7.39	-
6	26.898	1.24	27.56	-	28.80	-	48.00	-	-19.20	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.

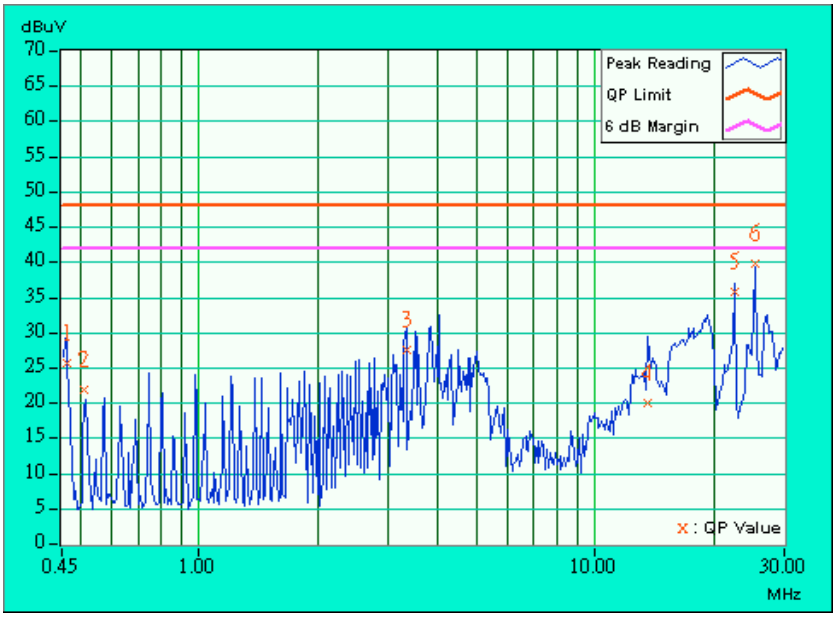


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 0	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.462	0.11	25.04	-	25.15	-	48.00	-	-22.85	-
2	0.513	0.12	21.10	-	21.22	-	48.00	-	-26.78	-
3	3.336	0.27	26.86	-	27.13	-	48.00	-	-20.87	-
4	13.586	0.47	19.32	-	19.79	-	48.00	-	-28.21	-
5	22.570	0.75	35.22	-	35.97	-	48.00	-	-12.03	-
6	25.230	0.70	39.02	-	39.72	-	48.00	-	-8.28	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.

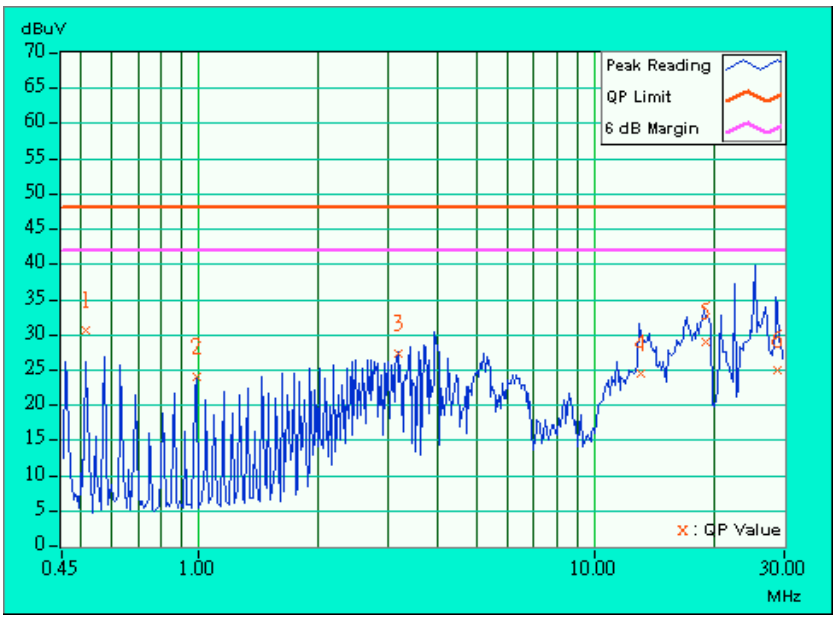


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 39	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.516	0.12	29.43	-	29.55	-	48.00	-	-18.45	-
2	0.981	0.20	22.77	-	22.97	-	48.00	-	-25.03	-
3	3.168	0.32	26.08	-	26.40	-	48.00	-	-21.60	-
4	13.082	0.66	23.32	-	23.98	-	48.00	-	-24.02	-
5	18.992	0.94	27.61	-	28.55	-	48.00	-	-19.45	-
6	28.867	1.28	23.69	-	24.97	-	48.00	-	-23.03	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.

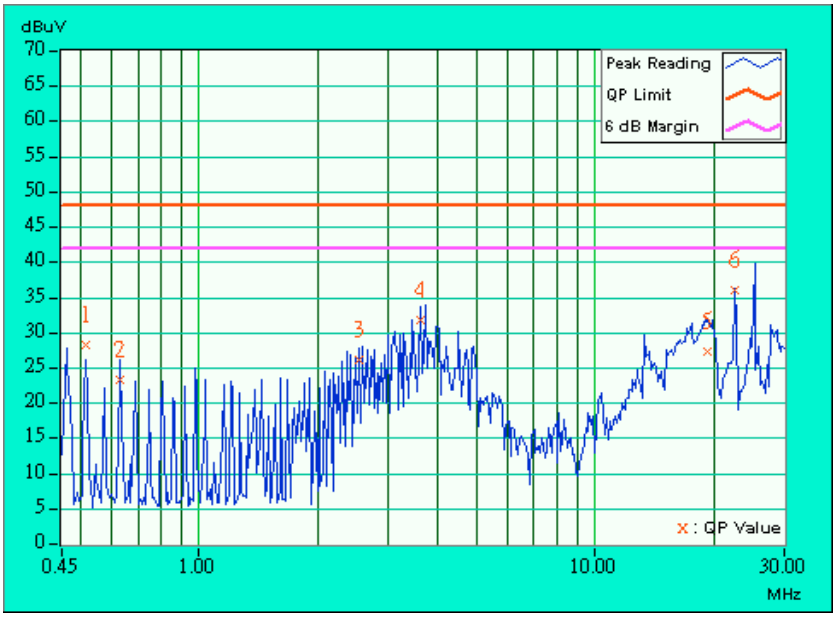


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 39	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (Uv)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.516	0.12	27.61	-	27.73	-	48.00	-	-20.27	-
2	0.630	0.14	22.59	-	22.73	-	48.00	-	-25.27	-
3	2.531	0.23	25.34	-	25.57	-	48.00	-	-22.43	-
4	3.625	0.28	31.17	-	31.45	-	48.00	-	-16.55	-
5	19.133	0.75	26.57	-	27.32	-	48.00	-	-20.68	-
6	22.570	0.75	35.24	-	35.99	-	48.00	-	-12.01	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.

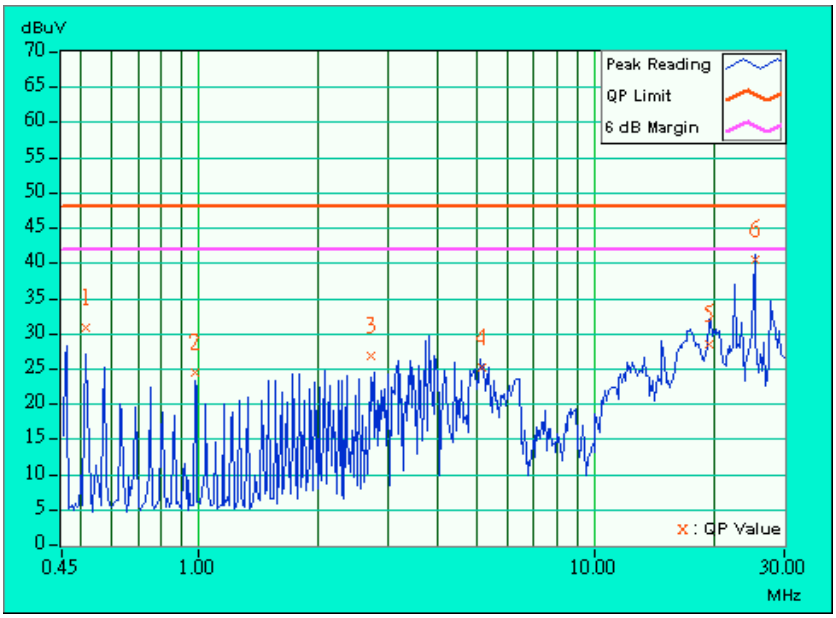


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 78	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.516	0.12	29.70	-	29.82	-	48.00	-	-18.18	-
2	0.977	0.20	23.42	-	23.62	-	48.00	-	-24.38	-
3	2.707	0.27	25.77	-	26.04	-	48.00	-	-21.96	-
4	5.184	0.44	23.95	-	24.39	-	48.00	-	-23.61	-
5	19.363	0.96	27.33	-	28.29	-	48.00	-	-19.71	-
6	25.230	1.20	39.43	-	40.63	-	48.00	-	-7.37	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.

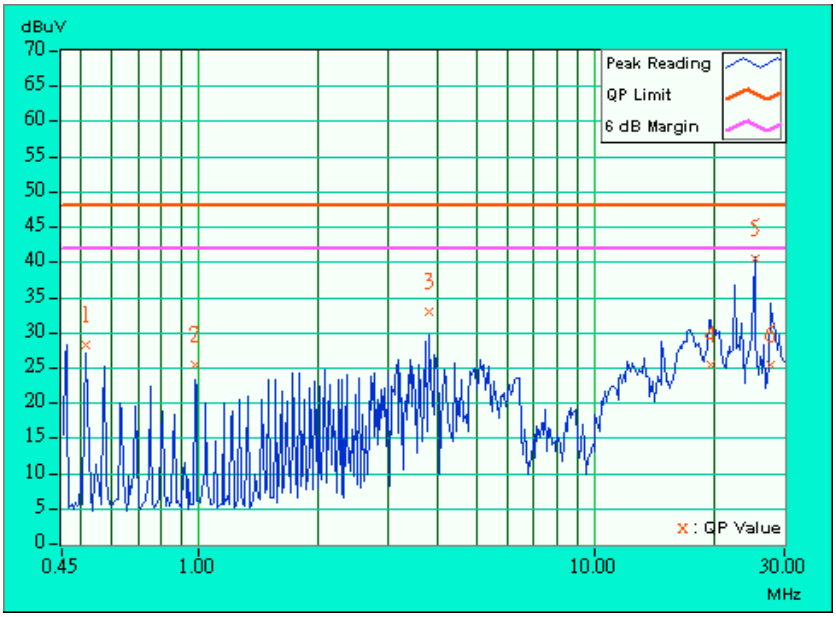


EUT	Bluetooth Module	**MODEL**	BT-0002M
MODE	Channel 78	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Netural (N)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.516	0.12	27.55	-	27.67	-	48.00	-	-20.33	-
2	0.977	0.20	24.67	-	24.87	-	48.00	-	-23.13	-
3	3.797	0.29	32.13	-	32.42	-	48.00	-	-15.58	-
4	19.609	0.78	24.76	-	25.54	-	48.00	-	-22.46	-
5	25.230	0.70	39.73	-	40.43	-	48.00	-	-7.57	-
6	27.727	0.75	24.70	-	25.45	-	48.00	-	-22.55	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.



4.2 NUMBER OF HOPPING FREQUENCY USED

4.2.1 LIMIT OF HOPPING FREQUENCY USED

At least 75 hopping frequencies, and should be equally spaced.

4.2.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July 17, 2002

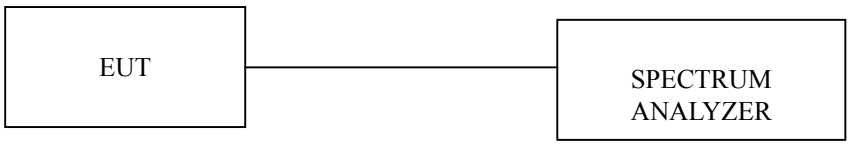
NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. 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

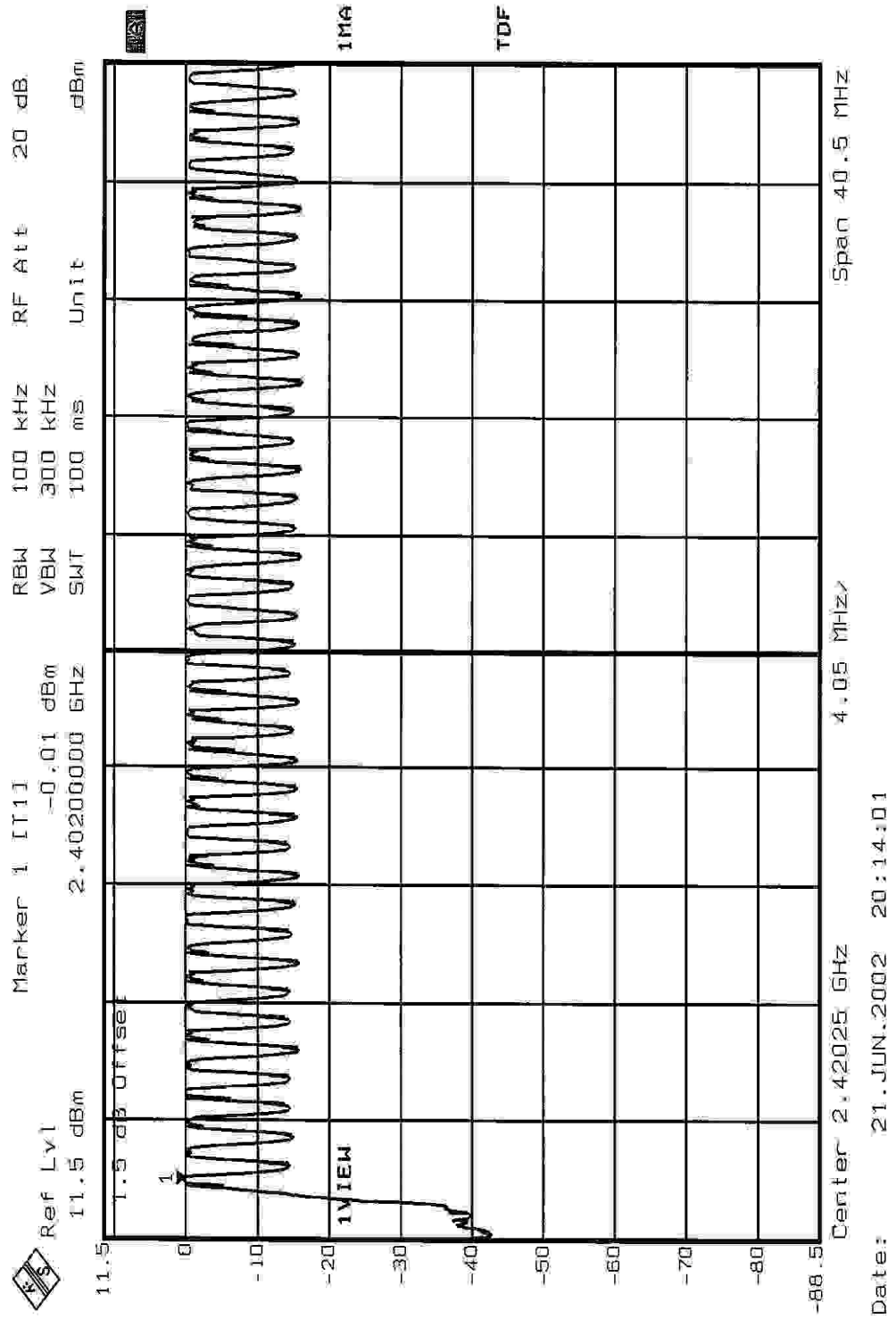
1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and 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.

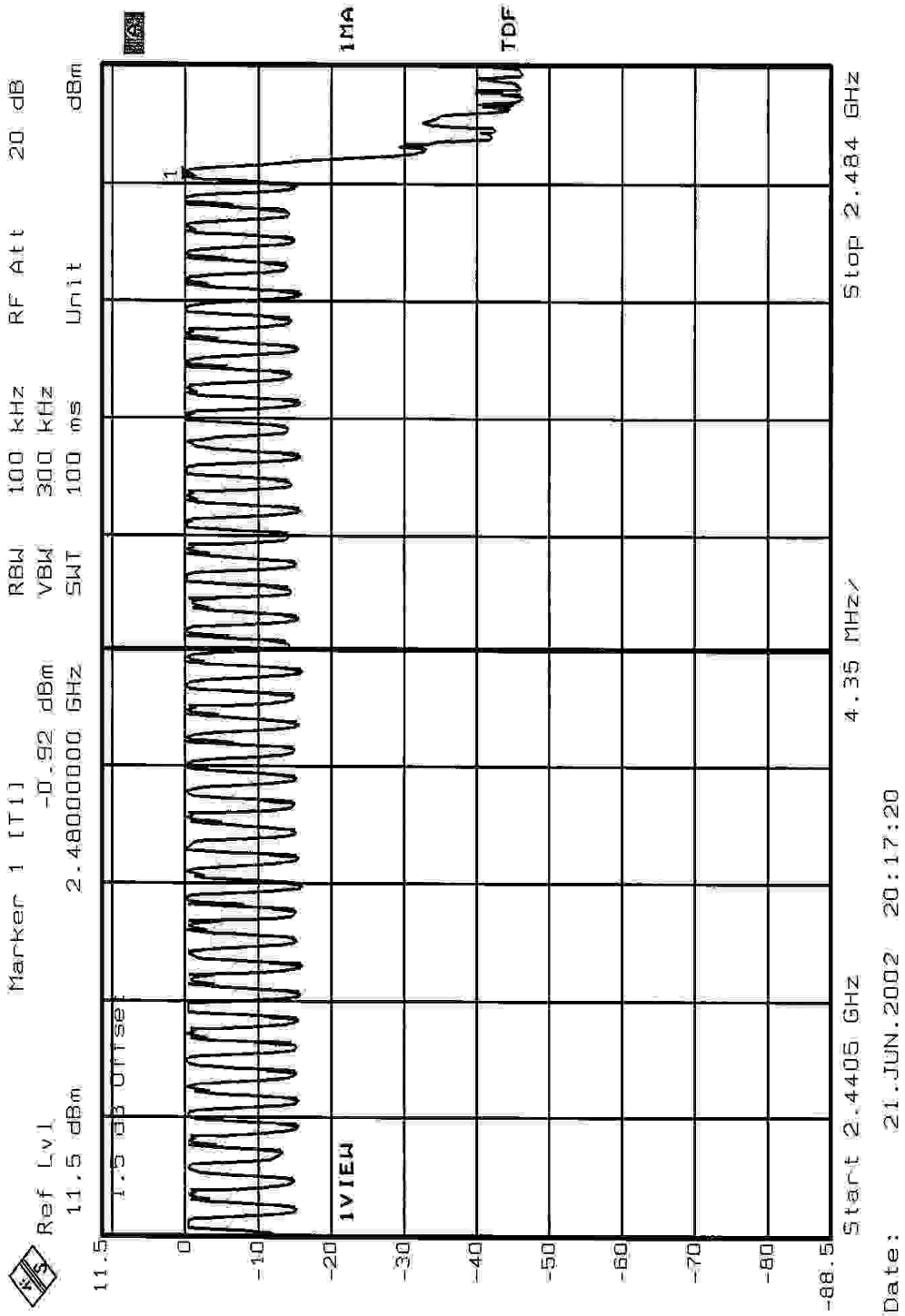
4.2.4 TEST SETUP



4.2.5 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.


Ref Lvl
11.5 dBm
1.5 dB Offset
Marker 1 [T1]
-0.01 dBm
2.40200000 GHz
RBW 100 kHz
VBW 300 kHz
SWT 100 ms
RF Att 20 dB
Unit dBm
1MA
TDF
1VIEW
11.5
0
-10
-20
-30
-40
-50
-60
-70
-80
-88.5
Center 2.42025 GHz
4.05 MHz/
Span 40.5 MHz
Date: 21.JUN.2002 20:14:01


Ref Lvl
11.5 dBm
1.5 dB Offset
Marker 1 [T1]
-0.92 dBm
2.48000000 GHz
RBW 100 kHz
VBW 300 kHz
SWT 100 ms
RF Att 20 dB
Unit dBm
1MA
TDF
1VIEW
11.5
0
-10
-20
-30
-40
-50
-60
-70
-80
-88.5
Start 2.4405 GHz
4.35 MHz/
Stop 2.484 GHz
Date: 21.JUN.2002 20:17:20

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 30 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	July 17, 2002

NOTES:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. 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 TEST SETUP

4.3.5 TEST RESULTS

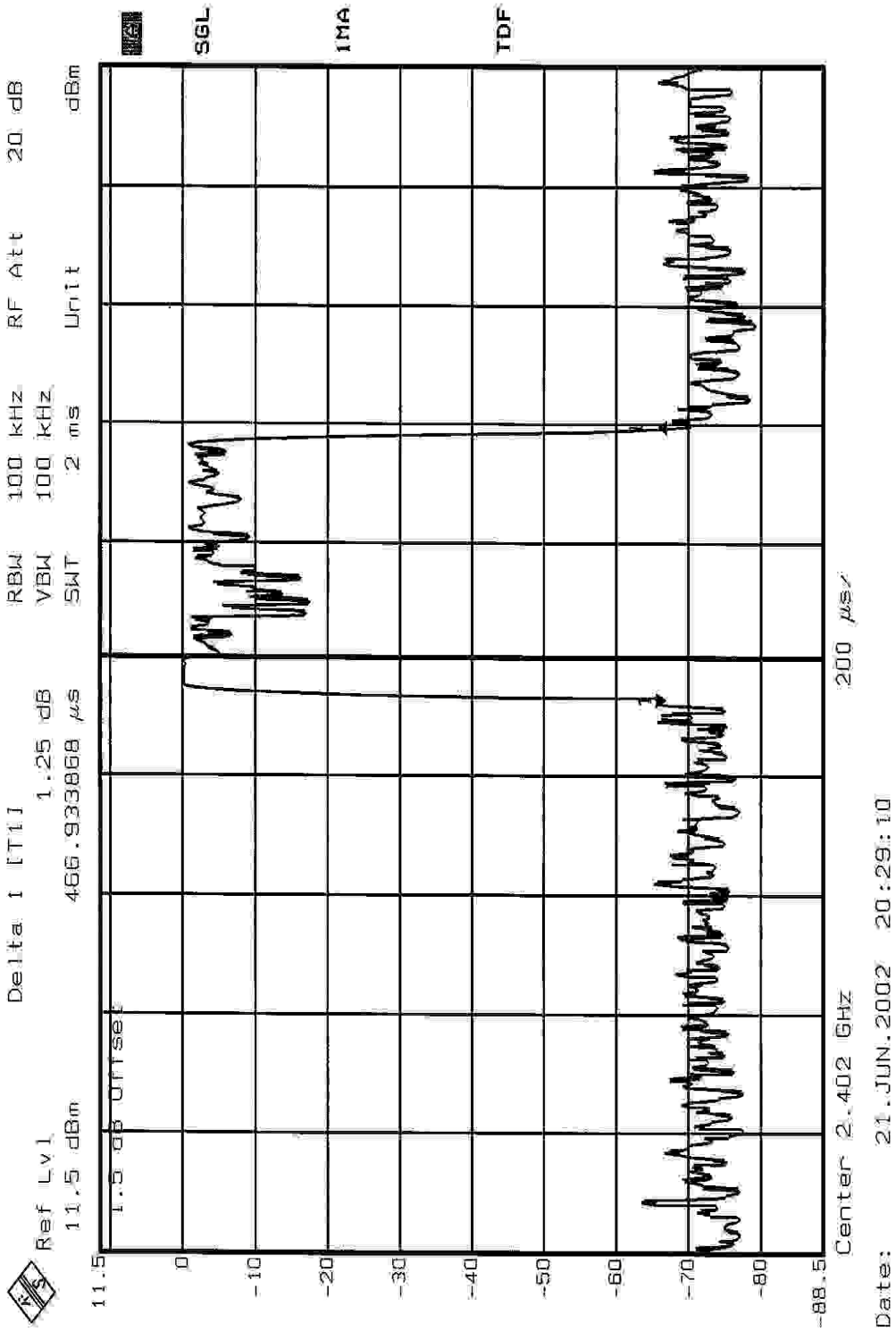
CHANNEL	DWELL TIME
0	283.70ms
39	283.70ms
78	283.70ms

Note : This product is averagely hopped on 79 frequencies. The maximum hopping rate is 1600 hops/sec. The longest pulse duration is 460.92μsec.

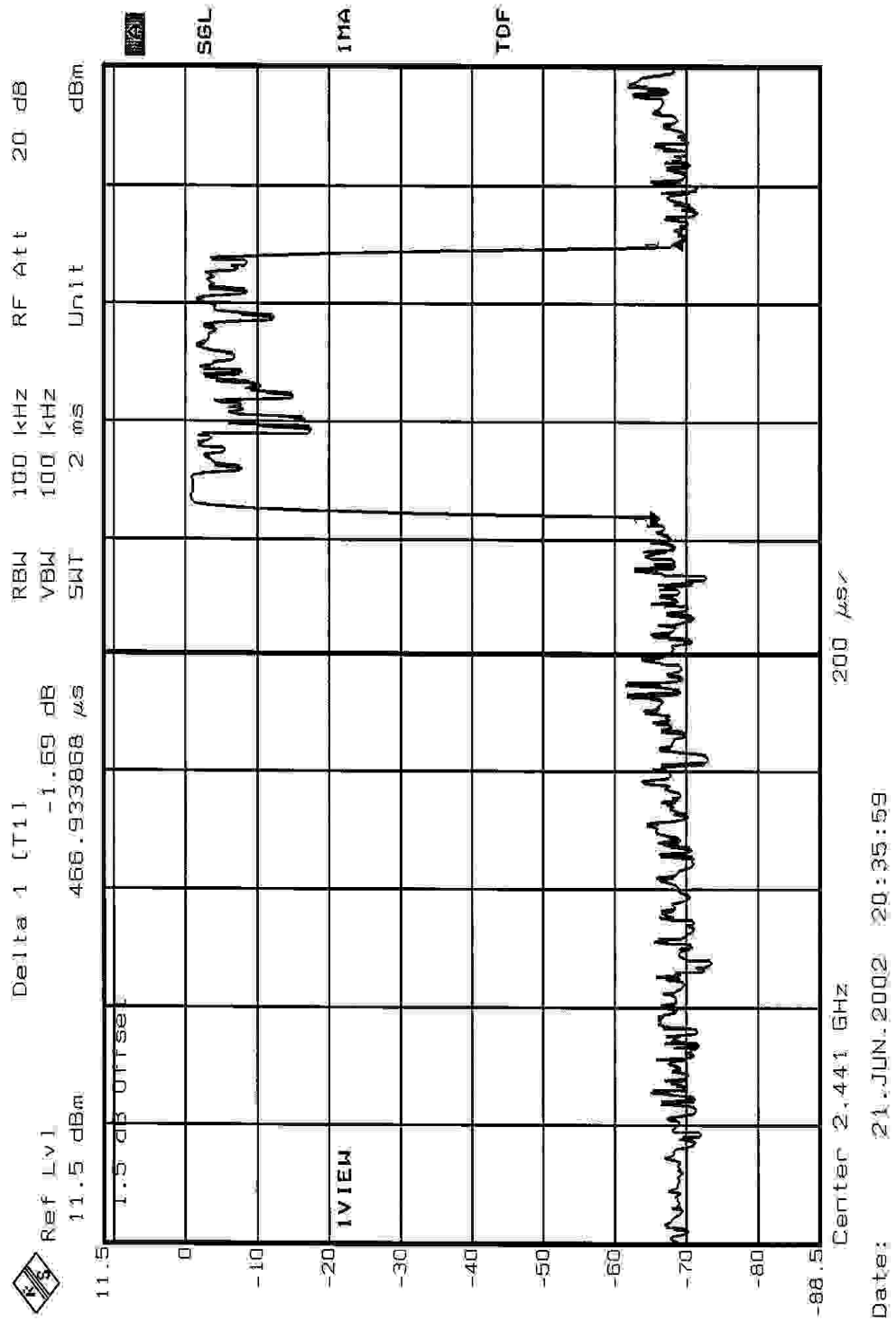
So, the longest Dwell Time = 466.93 μsec x 1600 ÷79 x 30 = 283.70 msec. which is smaller than 0.4sec.

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

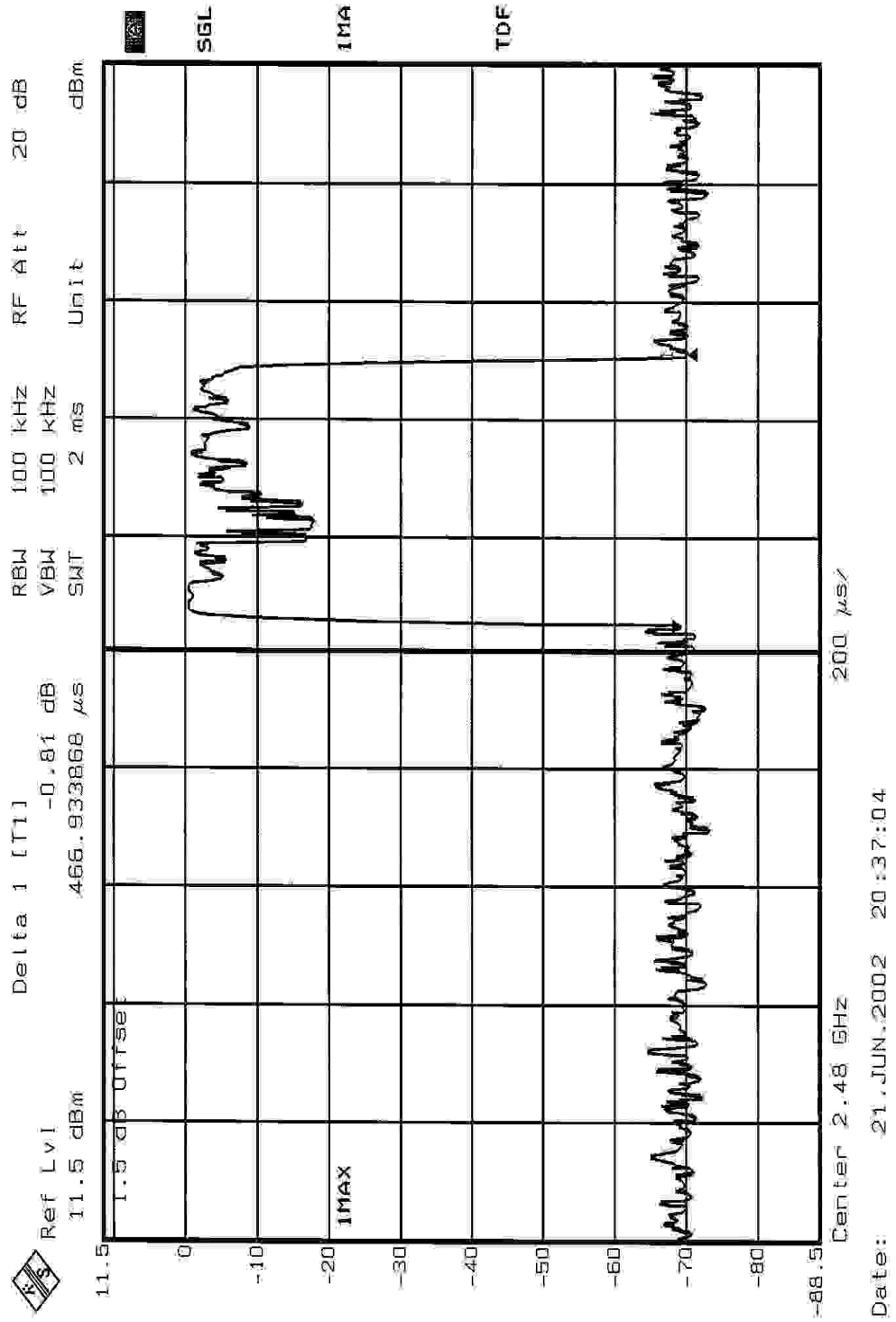
Channel 0


Ref Lvl
11.5 dBm
1.5 dB Offset
Delta 1 [T1]
1.25 dB
466.933868 µs
RBW 100 kHz
VBW 100 kHz
SWT 2 ms
RF Att 20 dB
Unit dBm
SGL
1MA
TDF
11.5
0
-10
-20
-30
-40
-50
-60
-70
-80
-88.5
200 µs/
Center 2.402 GHz
Date: 21.JUN.2002 20:29:10

Channel 39


Ref Lvl
11.5 dBm
Delta 1 [T1]
-1.69 dB
466.933868 µs
RBW 100 kHz
VBW 100 kHz
SWT 2 ms
RF Att 20 dB
Unit dBm
1.5 dB Offset
1VIEW
SGL
IMA
TDF
11.5
0
-10
-20
-30
-40
-50
-60
-70
-80
-88.5
Center 2.441 GHz
200 µs/
Date: 21.JUN.2002 20:35:59

Channel 78


Ref Lvl
11.5 dBm
1.5 dB Offset
Delta 1 [T1]
-0.81 dB
466.933868 µs
RBW 100 kHz
VBW 100 kHz
SWT 2 ms
RF Att 20 dB
Unit dBm
SGL
1MA
TDF
1MAX
11.5
0
-10
-20
-30
-40
-50
-60
-70
-80
-88.5
Center 2.48 GHz
200 µs/
Date: 21.JUN.2002 20:37:04

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	July 17, 2002

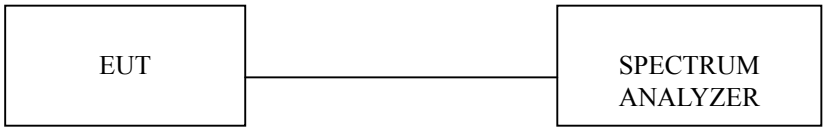
NOTES:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. 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 TEST SETUP



4.4.5 EUT OPERATING CONDITION

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

4.4.6 TEST RESULTS

Data Mode:

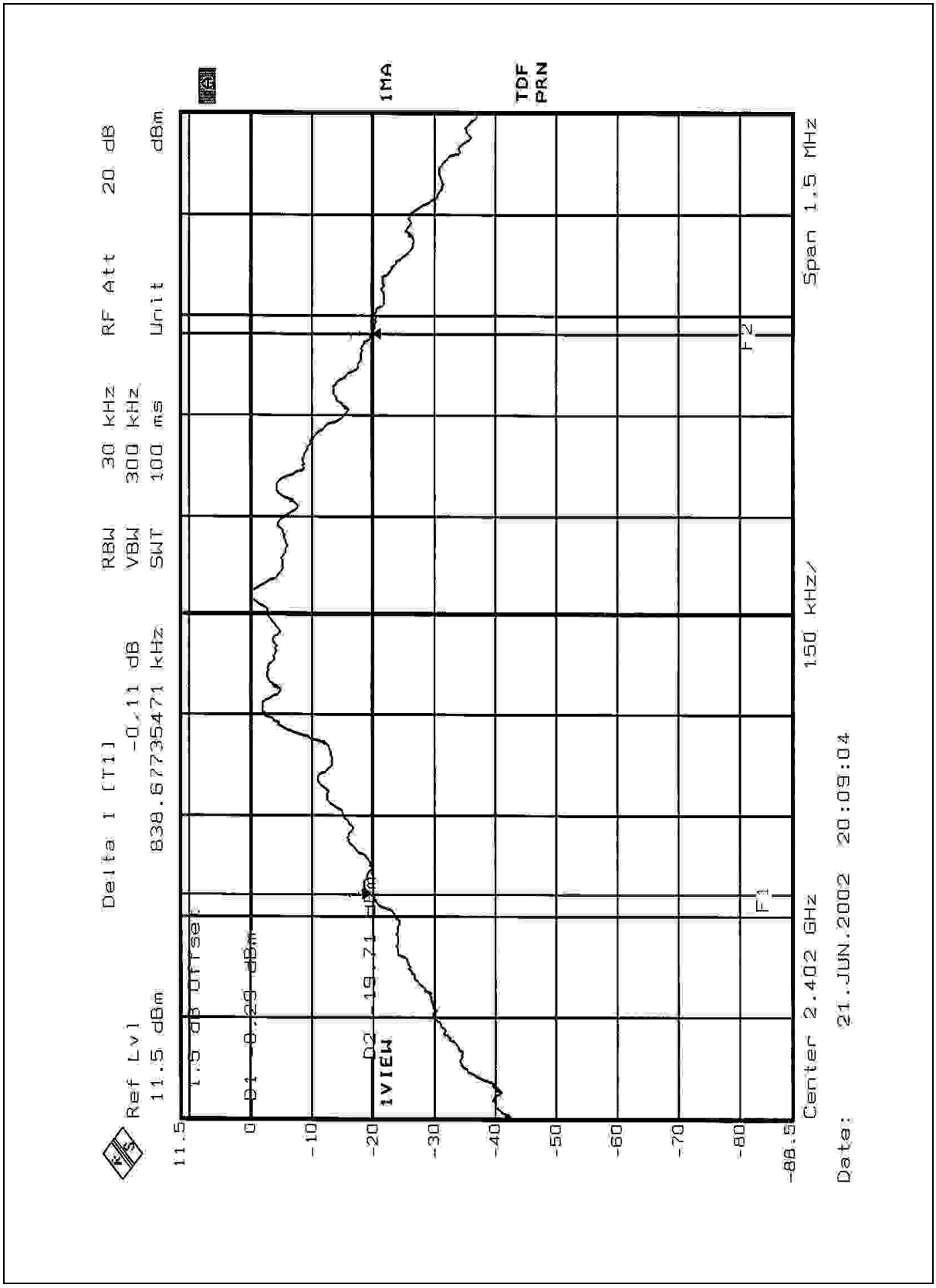
CHANNEL	CHANNEL FREQUENCY (MHz)	20 dB BANDWIDTH (kHz)	MAXIMUM LIMIT (MHz)	PASS/FAIL
0	2402	838.677	1	PASS
39	2441	817.635	1	PASS
78	2480	838.677	1	PASS

Acquisition Mode:

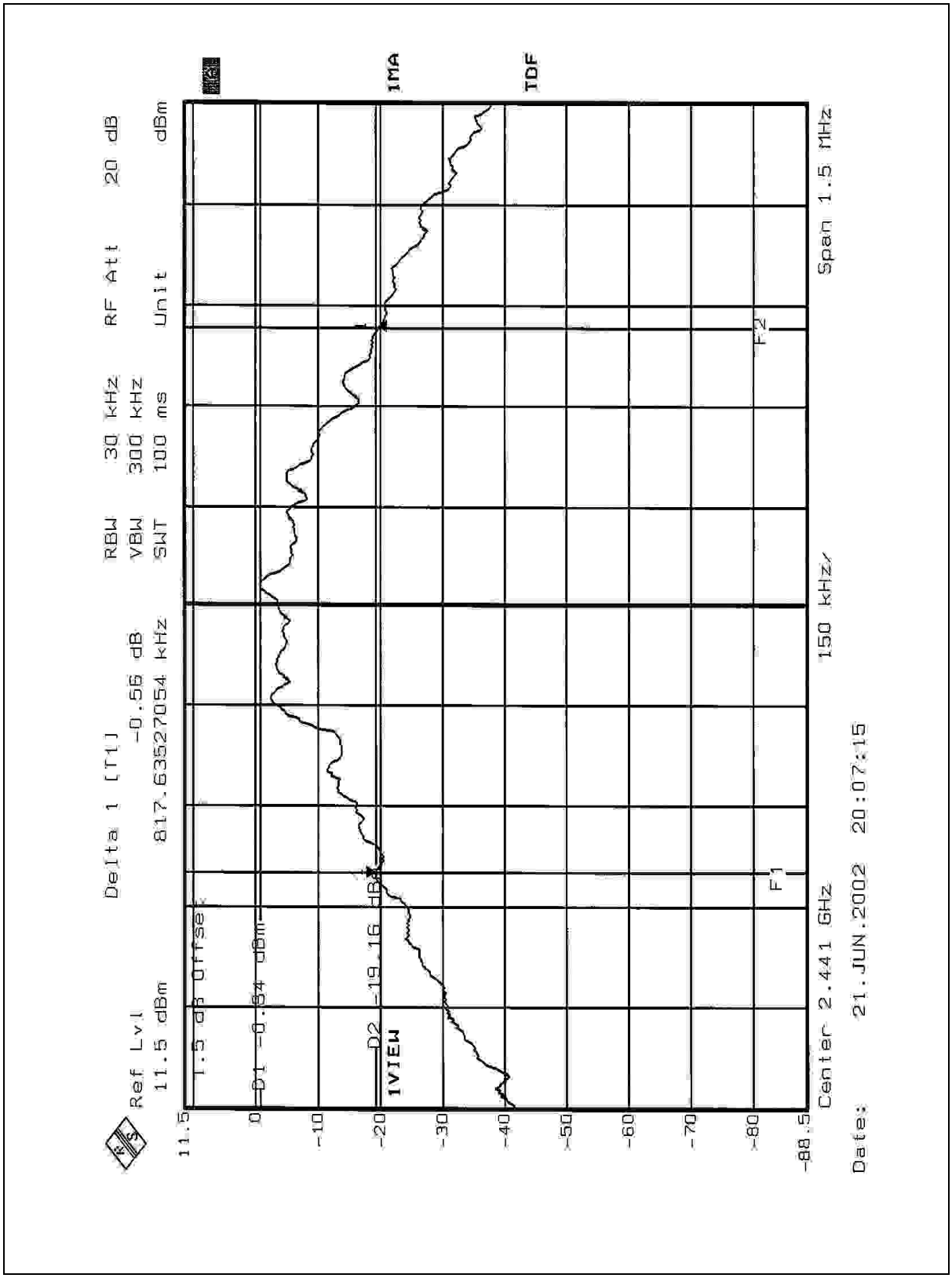
CHANNEL	CHANNEL FREQUENCY (MHz)	20 dB BANDWIDTH (kHz)	MAXIMUM LIMIT (MHz)	PASS/FAIL
39	2441	817.778	1	PASS

Data Mode:

Channel 0



Channel 39



REPORT NO.:

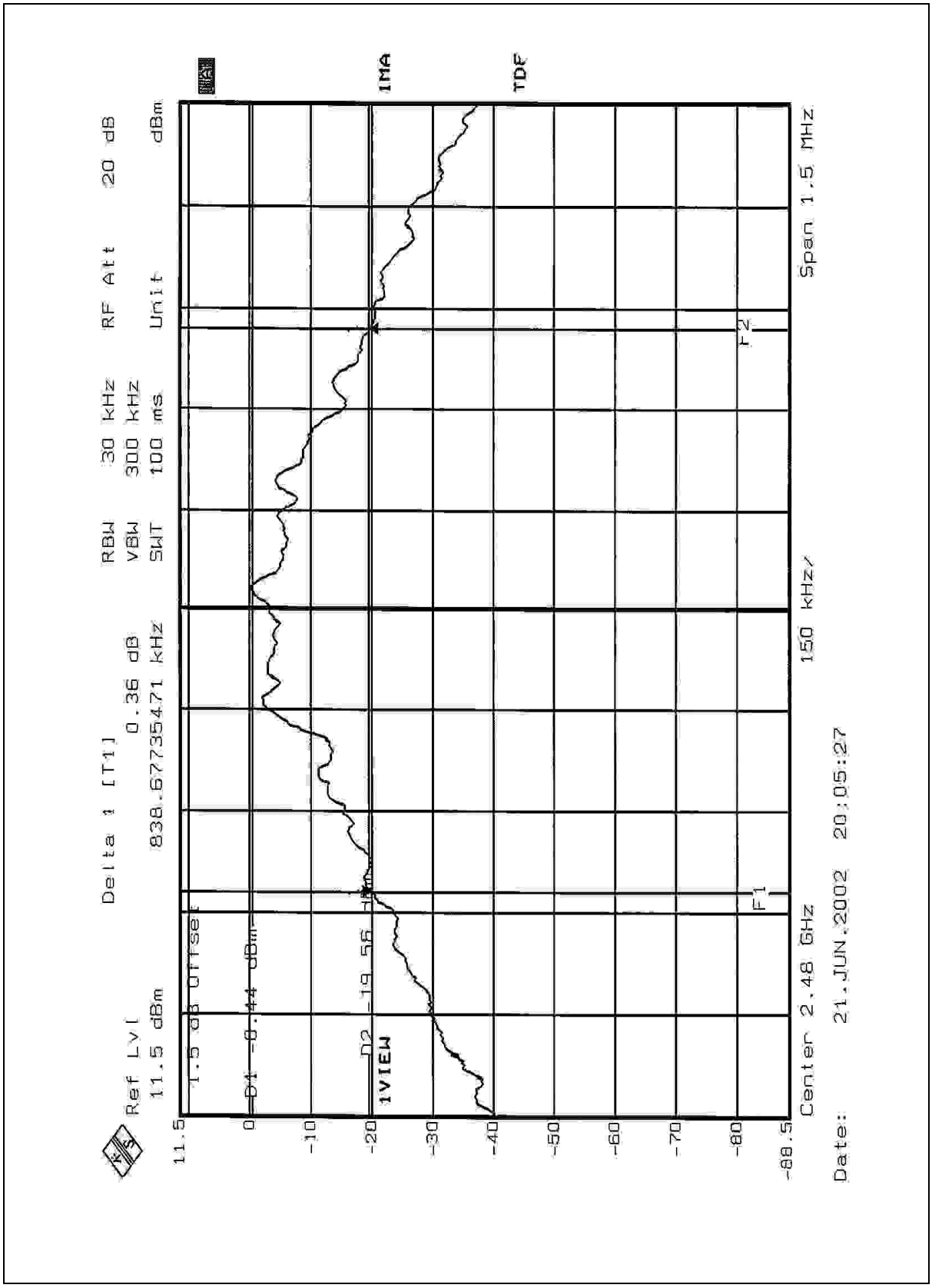
RF910614R01

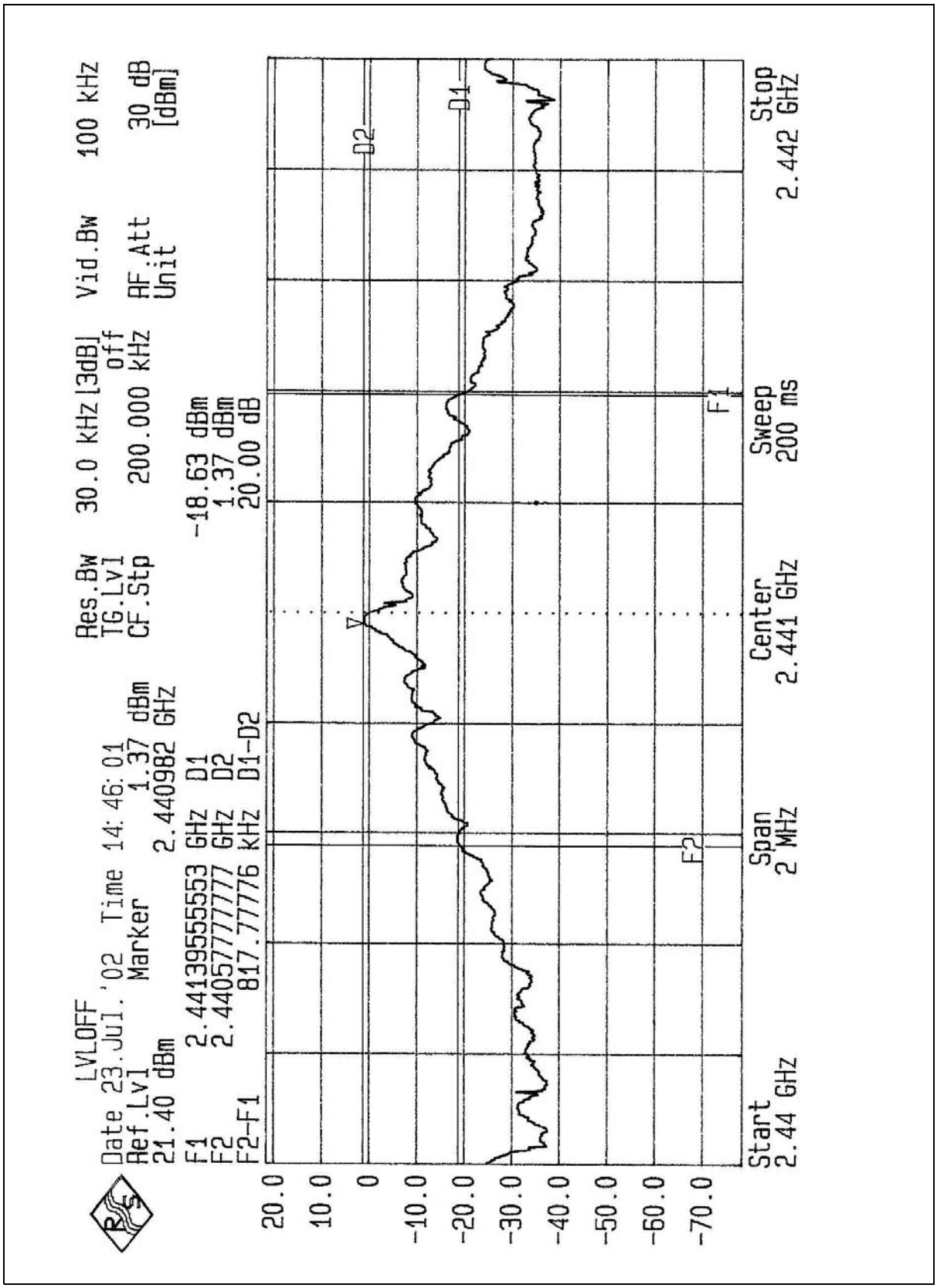
MODEL NO.:

BT-0002M

(The other models please refer to page 6)

Channel 78


Ref Lvl
11.5 dBm
1.5 dB Offset
D1 -8.44 dBm
D2 -19.56 dBm
Delta 1 [T1]
0.36 dB
838.677354.71 kHz
RBW 30 kHz
VBW 300 kHz
SWT 100 ms
RF Att 20 dB
Unit dBm
1VIEW
IMA
TDF
11.5
0
-10
-20
-30
-40
-50
-60
-70
-80
-88.5
F1
F2
Center 2.48 GHz
150 kHz/
Span 1.5 MHz
Date: 21.JUN.2002 20:05:27

Acquisition Mode:

Channel 39