

EUT	Mini- PCI CARD	MODEL	WLL4030
FREQUENCY RANGE	1 ~ 40 GHz	CHANNEL	12
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	MODE	Normal
TESTED BY	Long Chen		

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	#3870.00	47.50 PK	74.00	-26.50	1.85 H	328	12.45	35.05
2	*5805.00	107.50 PK			1.52 H	84	68.01	39.49
2	*5805.00	97.50 AV			1.52 H	84	58.01	39.49
3	#5825.00	74.40 PK	78.30	-3.90	1.52 H	84	34.92	39.48
4	#5835.00	60.80 PK	68.30	-7.50	1.52 H	84	21.32	39.48
5	#11610.00	61.50 PK	74.00	-12.50	1.31 H	65	11.67	49.83
5	#11610.00	50.00 AV	54.00	-4.00	1.31 H	65	0.17	49.83

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	#3870.00	46.50 PK	74.00	-27.50	1.27 V	81	11.45	35.05
2	*5805.00	104.80 PK			1.31 V	71	65.31	39.49
2	*5805.00	93.20 AV			1.31 V	71	53.71	39.49
3	#5825.00	72.80 PK	78.30	-5.50	1.31 V	71	33.32	39.48
4	#5835.00	59.50 PK	68.30	-8.80	1.31 V	71	20.02	39.48
5	#11610.00	62.80 PK	74.00	-11.20	1.39 V	82	12.97	49.83
5	#11610.00	50.70 AV	54.00	-3.30	1.39 V	82	0.87	49.83

NOTE:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ” : Fundamental frequency.
6. “ # ” The radiated frequency falling in the restricted band.

EUT	Mini- PCI CARD	MODEL	WLL4030
FREQUENCY RANGE	1 ~ 40 GHz	CHANNEL	1
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	MODE	Turbo Mode
TESTED BY	Long Chen		

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)
1	3473.30	52.33 PK	68.30	-15.97	1.72 H	338	18.10	34.23
2	#5150.00	54.14 PK	74.00	-19.86	1.00 H	21	15.70	38.44
2	#5150.00	44.74 AV	54.00	-9.26	1.00 H	21	6.30	38.44
3	*5210.00	100.81 PK			1.00 H	21	62.17	38.64
3	*5210.00	91.41 AV			1.00 H	21	52.77	38.64
4	10420.00	64.10 PK	68.30	-4.20	1.13 H	84	14.43	49.67

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)
1	3473.30	48.36 PK	68.30	-19.94	1.58 V	174	14.13	34.23
2	#5150.00	46.00 PK	74.00	-28.00	1.76 V	28	7.56	38.44
3	*5210.00	92.67 PK			1.76 V	28	54.03	38.64
3	*5210.00	83.46 AV			1.76 V	28	44.82	38.64
4	10420.00	65.71 PK	68.30	-2.59	2.21 V	32	16.04	49.67

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.
5. "*" : Fundamental frequency
6. # "The radiated frequency falling in the restricted band.

EUT	Mini- PCI CARD	MODEL	WLL4030
FREQUENCY RANGE	1 ~ 40 GHz	CHANNEL	2
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	MODE	Turbo Mode
TESTED BY	Long Chen		

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)
1	3500.00	53.93 PK	68.30	-14.37	1.07 H	109	19.73	34.20
2	*5250.00	101.41 PK			1.00 H	21	62.79	38.61
2	*5250.00	91.82 AV			1.00 H	21	53.21	38.61
3	10500.00	63.47 PK	68.30	-4.83	1.16 H	338	14.56	48.91

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)
1	3500.00	47.69 PK	68.30	-20.61	1.09 V	321	13.49	34.20
2	*5250.00	93.06 PK			1.09 V	172	54.45	38.61
2	*5250.00	84.11 AV			1.09 V	172	45.50	38.61
3	10500.00	65.44 PK	68.30	-2.86	1.60 V	30	16.53	48.91

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.
5. “#”The radiated frequency falling in the restricted band.

EUT	Mini- PCI CARD	MODEL	WLL4030
FREQUENCY RANGE	1 ~ 40 GHz	CHANNEL	3
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	MODE	Turbo Mode
TESTED BY	Long Chen		

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)
1	3526.00	51.10 PK	68.30	-17.20	1.19 H	10	16.75	34.35
2	*5290.00	101.22 PK			1.00 H	26	62.63	38.59
2	*5290.00	91.37 AV			1.00 H	26	52.78	38.59
3	#5350.00	53.09 PK	74.00	-20.91	1.00 H	26	14.56	38.53
3	#5350.00	43.24 AV	54.00	-10.76	1.00 H	26	4.71	38.53
4	10580.00	61.74 PK	68.30	-6.56	1.35 H	338	12.61	49.13

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)
1	3526.00	48.70 PK	68.30	-19.60	1.38 V	107	14.35	34.35
2	*5290.00	94.91 PK			1.00 V	158	56.32	38.59
2	*5290.00	85.18 AV			1.00 V	158	46.59	38.59
3	#5350.00	46.78 PK	74.00	-27.22	1.00 V	158	8.25	38.53
4	10580.00	65.19 PK	68.30	-3.11	1.02 V	176	16.06	49.13

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.
5. "*" : Fundamental frequency
6. "#"The radiated frequency falling in the restricted band.

EUT	Mini- PCI CARD	MODEL	WLL4030
FREQUENCY RANGE	1 ~40 GHz	CHANNEL	4
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	MODE	Turbo Mode
TESTED BY	Long Chen		

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)
1	#3840.00	48.89 PK	74.00	-25.11	1.12 H	7	13.87	35.02
1	#3840.00	37.64 AV	54.00	-16.36	1.12 H	7	2.62	35.02
2	5715.00	64.29 PK	68.30	-4.01	1.20 H	10	25.25	39.04
3	5725.00	73.54 PK	78.30	-4.76	1.20 H	10	34.45	39.09
4	*5760.00	99.01 PK			1.20 H	10	59.73	39.28
4	*5760.00	91.95 AV			1.20 H	10	52.67	39.28
5	#11520.00	62.89 PK	74.00	-11.11	1.54 H	112	13.08	49.80
5	#11520.00	50.99 AV	54.00	-3.01	1.54 H	112	1.18	49.80

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)
1	#3840.00	46.85 PK	74.00	-27.15	1.12 V	204	11.83	35.02
2	5715.00	59.75 PK	68.30	-8.55	2.30 V	127	20.71	39.04
3	5725.00	68.68 PK	78.30	-9.62	2.30 V	127	29.59	39.09
4	*5760.00	94.87 PK			2.30 V	127	55.59	39.28
4	*5760.00	85.87 AV			2.30 V	127	46.59	39.28
5	#11520.00	64.30 PK	74.00	-9.70	1.37 V	25	14.49	49.80
5	#11520.00	51.36 AV	54.00	-2.64	1.37 V	25	1.55	49.80

NOTE:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “*” : Fundamental frequency.
6. “#”The radiated frequency falling in the restricted band.

EUT	Mini- PCI CARD	MODEL	WLL4030
FREQUENCY RANGE	1 ~ 40 GHz	CHANNEL	5
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	MODE	Turbo Mode
TESTED BY	Long Chen		

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)
1	#3866.60	51.72 PK	74.00	-22.28	1.16 H	228	16.67	35.05
1	#3866.60	41.03 AV	54.00	-12.97	1.16 H	228	5.98	35.05
2	*5800.00	100.34 PK			1.00 H	30	60.85	39.49
2	*5800.00	90.92 AV			1.00 H	30	51.43	39.49
3	5825.00	76.16 PK	78.30	-2.14	1.00 H	30	36.68	39.48
4	5835.00	63.35 PK	68.30	-4.95	1.00 H	30	23.87	39.48
5	#11600.00	64.25 PK	74.00	-9.75	1.52 H	92	14.39	49.86
5	#11600.00	51.06 AV	54.00	-2.94	1.52 H	92	1.20	49.86

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)
1	#3866.60	47.31 PK	74.00	-26.69	1.19 V	44	12.26	35.05
2	*5800.00	96.30 PK			2.09 V	126	56.81	39.49
2	*5800.00	86.41 AV			2.09 V	126	46.92	39.49
3	5825.00	72.26 PK	78.30	-6.04	2.09 V	126	32.78	39.48
4	5835.00	61.28 PK	68.30	-7.02	2.09 V	126	21.80	39.48
5	#11600.00	66.76 PK	74.00	-7.24	1.77 V	62	16.90	49.86
5	#11600.00	52.21 AV	54.00	-1.79	1.77 V	62	2.35	49.86

NOTE:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ” : Fundamental frequency.
6. “#”The radiated frequency falling in the restricted band.

5.3 PEAK TRANSMIT POWER MEASUREMENT

5.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

5.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

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

5.3.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 300kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

5.3.7 TEST RESULTS

EUT	Mini- PCI CARD	MODEL	WLL4030
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 991hPa	INPUT POWER (SYSTEM)	120Vac, 60 Hz
MODE	Nomal	TESTED BY	Long Chen

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	33.651	15.27	17.00	31.422	PASS
4	5240	34.594	15.39	17.00	29.739	PASS
5	5260	46.132	16.64	24.00	28.136	PASS
8	5320	45.394	16.57	24.00	26.693	PASS
9	5745	69.502	18.42	30.00	33.587	PASS
12	5805	66.374	18.22	30.00	35.831	PASS

NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

The image shows a spectrum analyzer display with a grid. The vertical axis (Y-axis) is labeled 'dBm' and ranges from -78.7 to 21.3. The horizontal axis (X-axis) is labeled 'MHz' and ranges from 4 to 40. The display shows a signal trace that is relatively flat at approximately -30 dBm from 4 to 10 MHz, then rises sharply to about -10 dBm at 15 MHz, and continues to rise with some noise to about -5 dBm at 40 MHz. A marker '1' is placed on the trace at approximately 10 MHz. The display also shows various parameters: 'Marker 1 [T1]' at 4.93 dBm, 'Ref Lvl' at 21.3 dBm, 'Offset' at 1.3 dB, 'RBW' at 1 MHz, 'VBW' at 300 kHz, 'SMT' at 5 ms, 'Unit' at dBm, 'RF Att' at 30 dB, and '1SA' at the bottom right. The text '1SA' is also visible on the right side of the grid.

Marker 1 [T1] 4.81 dBm 5.23595190 GHz 1 MHz 1 MHz 300 kHz 30 dB

Ref Lvl 21.3 dBm 5.23595190 GHz 4 MHz 4 MHz 40 MHz

1.3 dB Offset 1 MAX 1 [T1] 4.81 dBm 5.23595190 GHz 1 MHz 1 MHz 300 kHz 30 dB

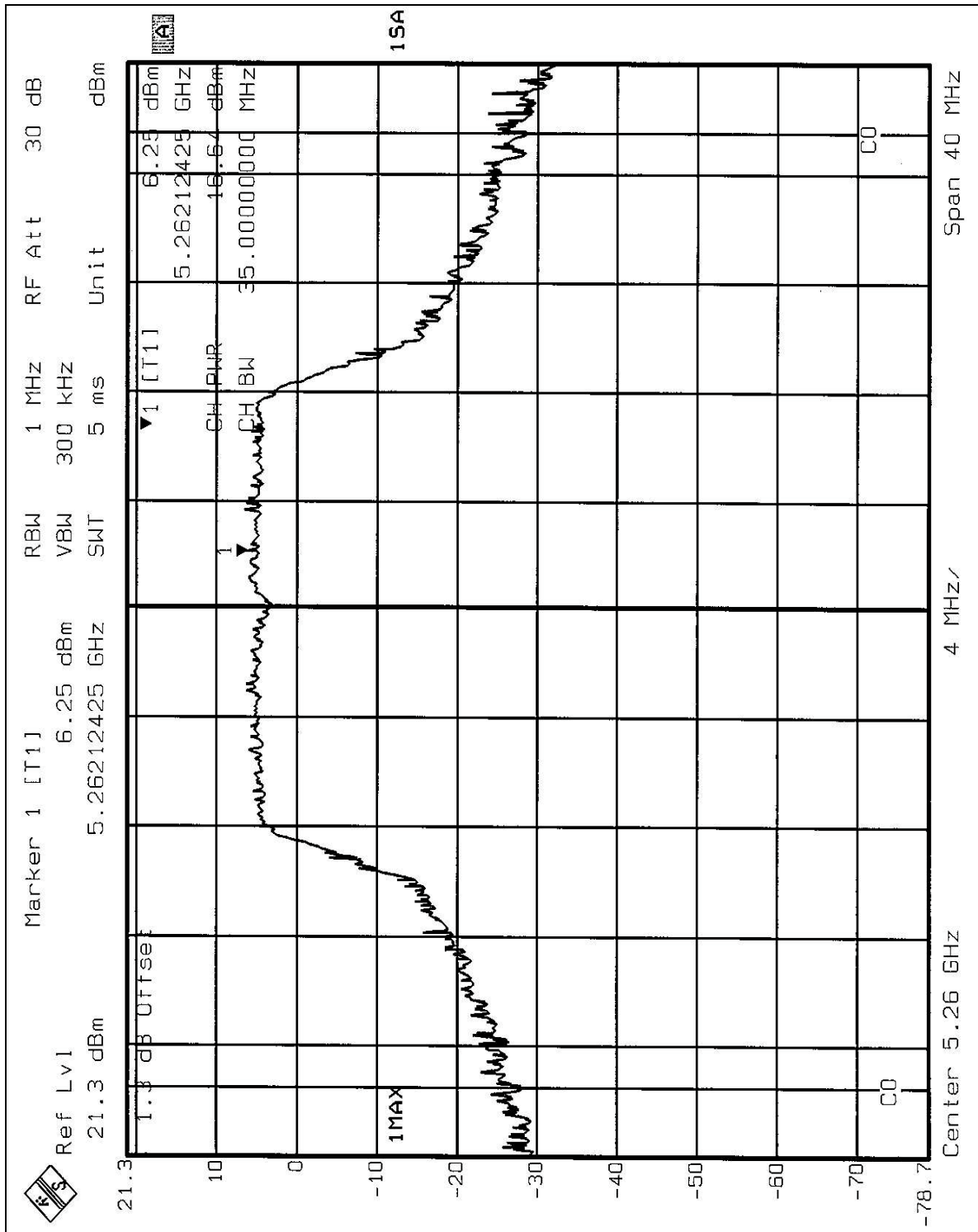
21.3 10 0 -10 -20 -30 -40 -50 -60 -70 -78.7

15.39 dBm 15.39 dBm 35.00000000 MHz

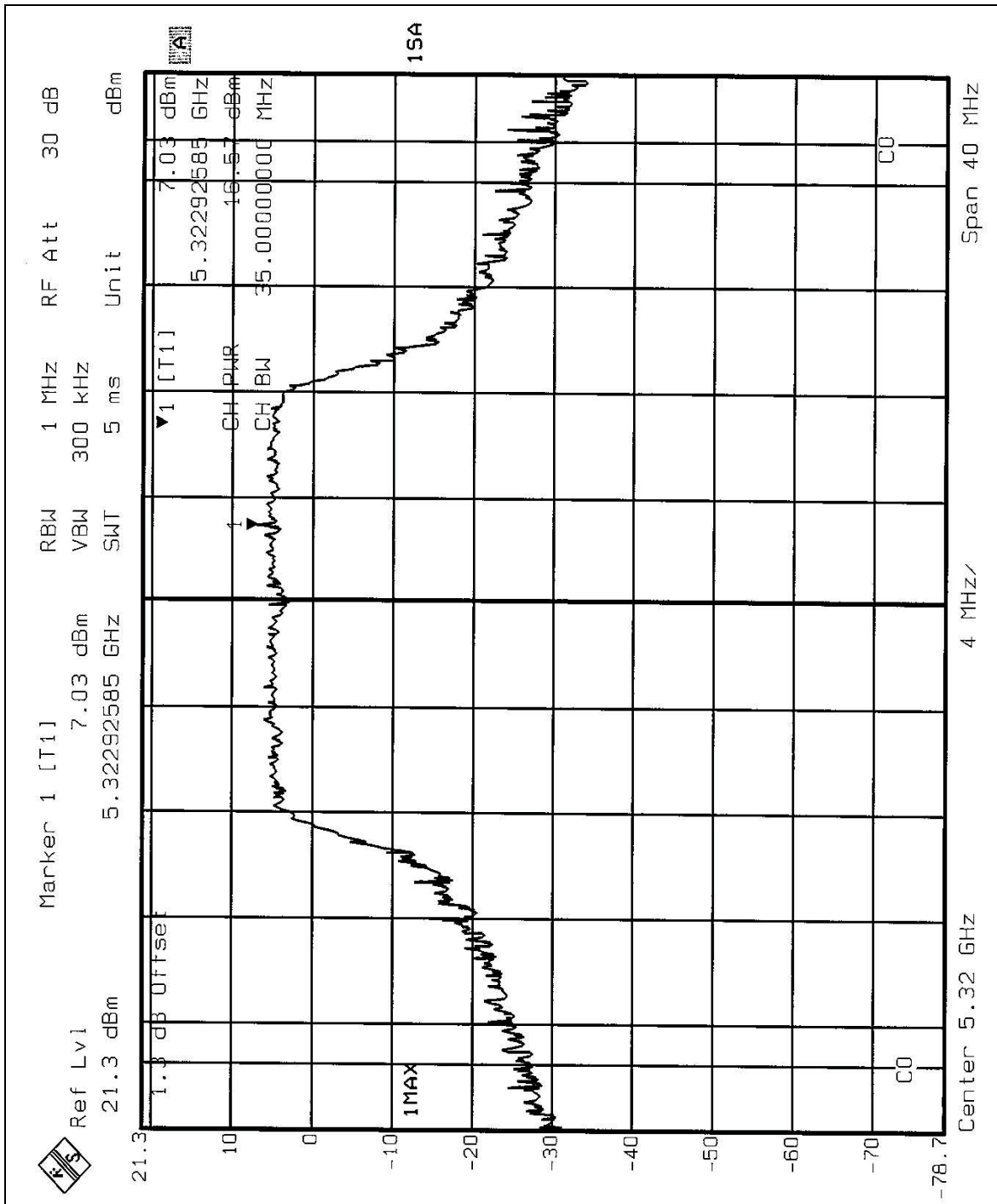
1SA

Center 5.24 GHz Span 40 MHz

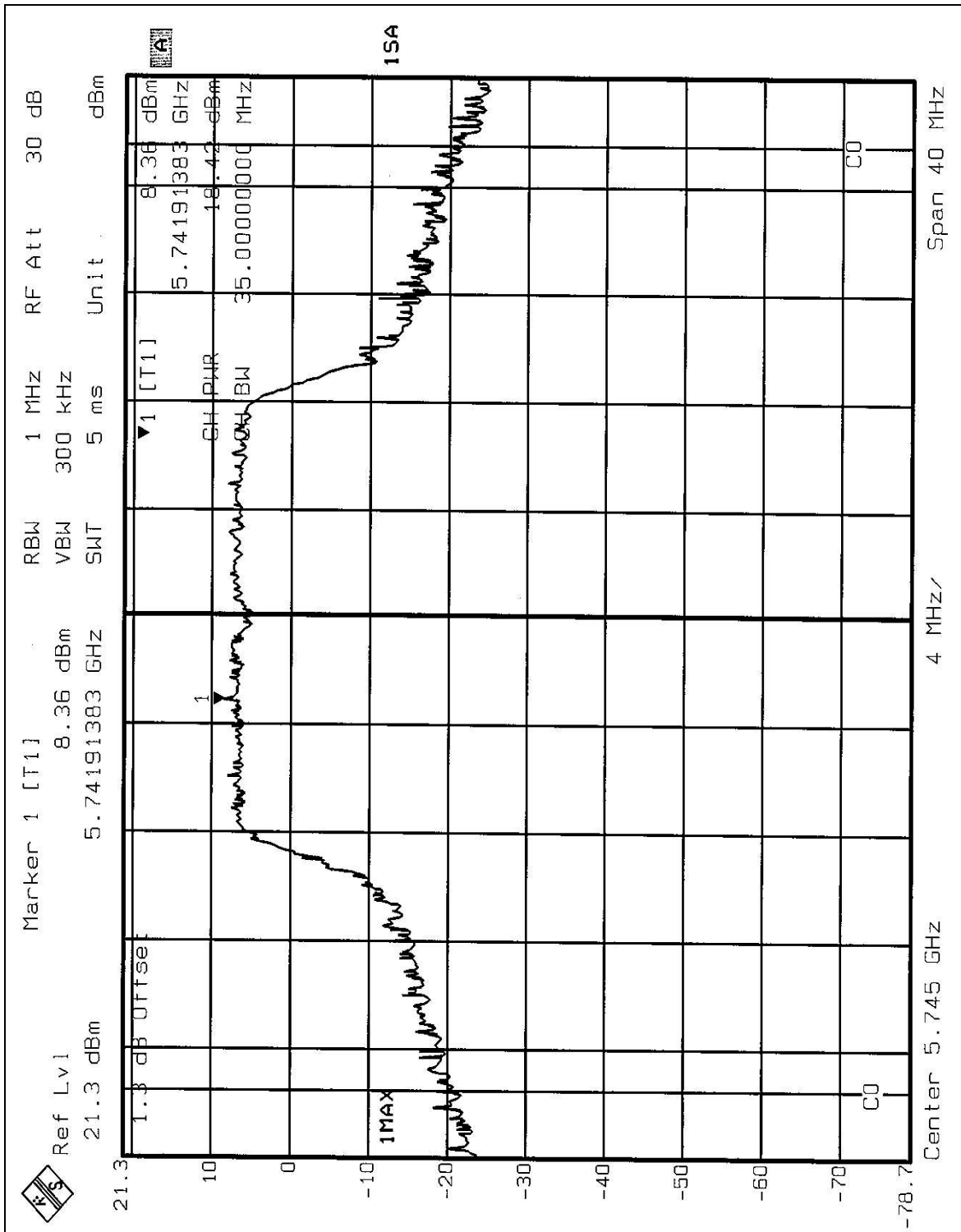
CH5



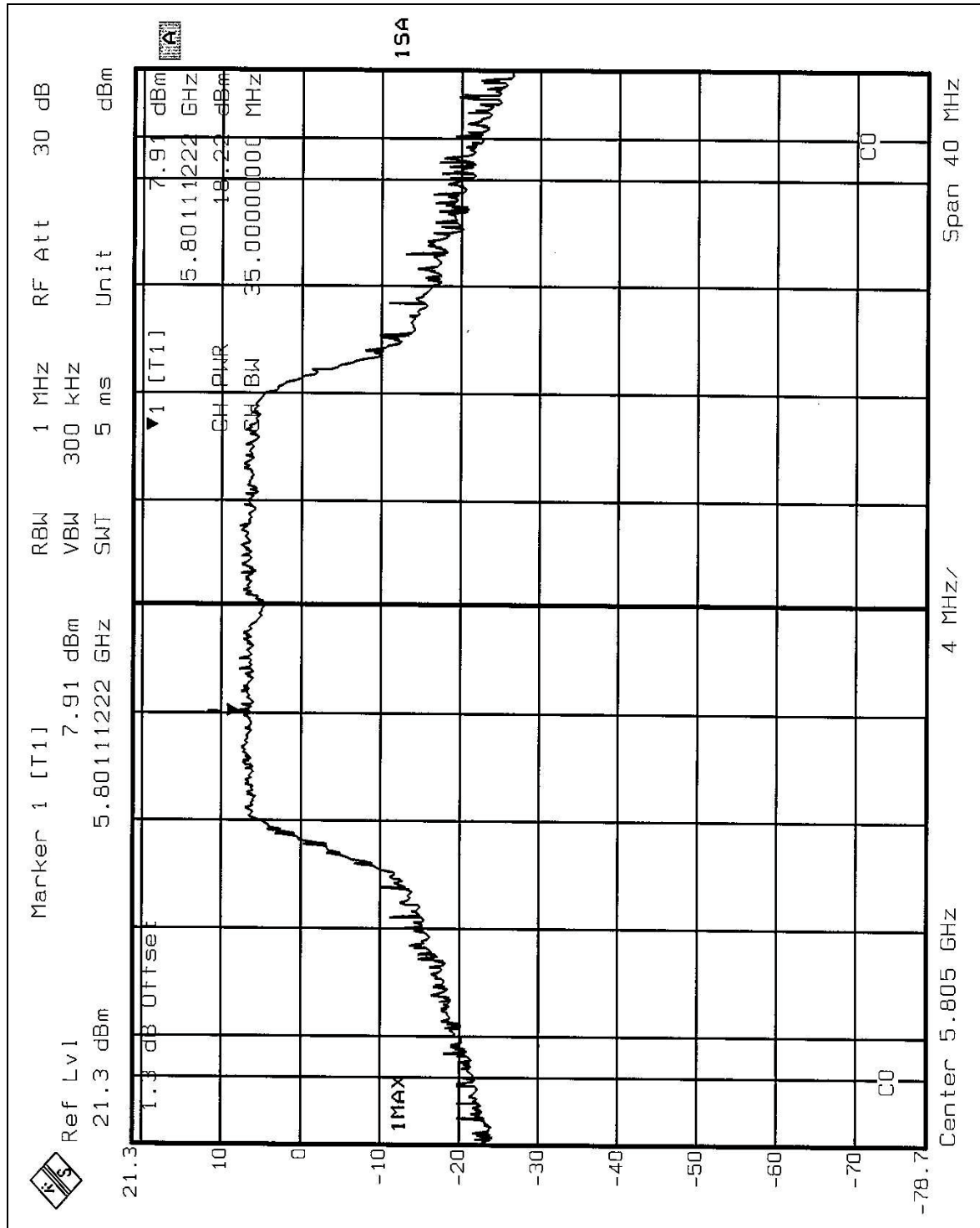
CH8



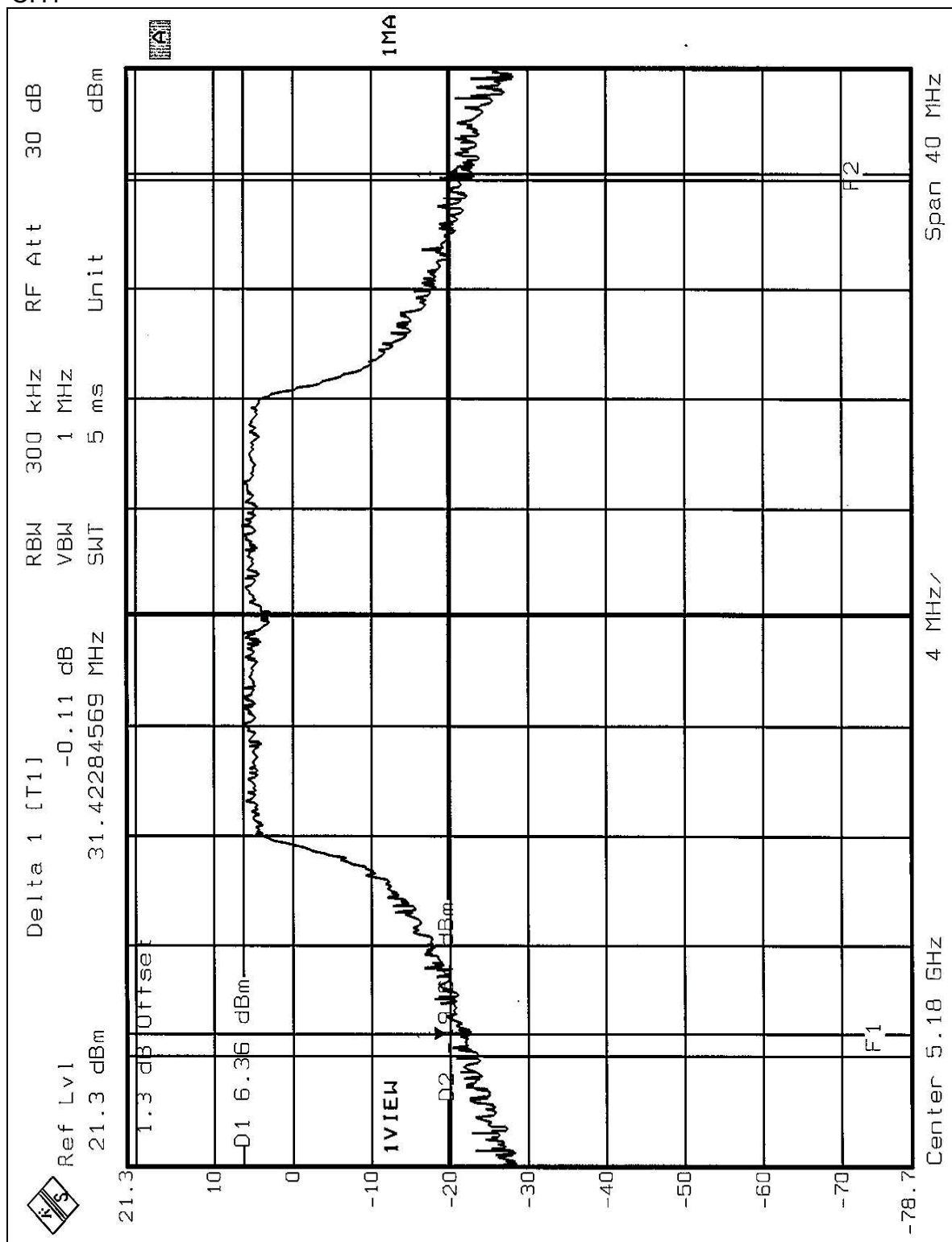
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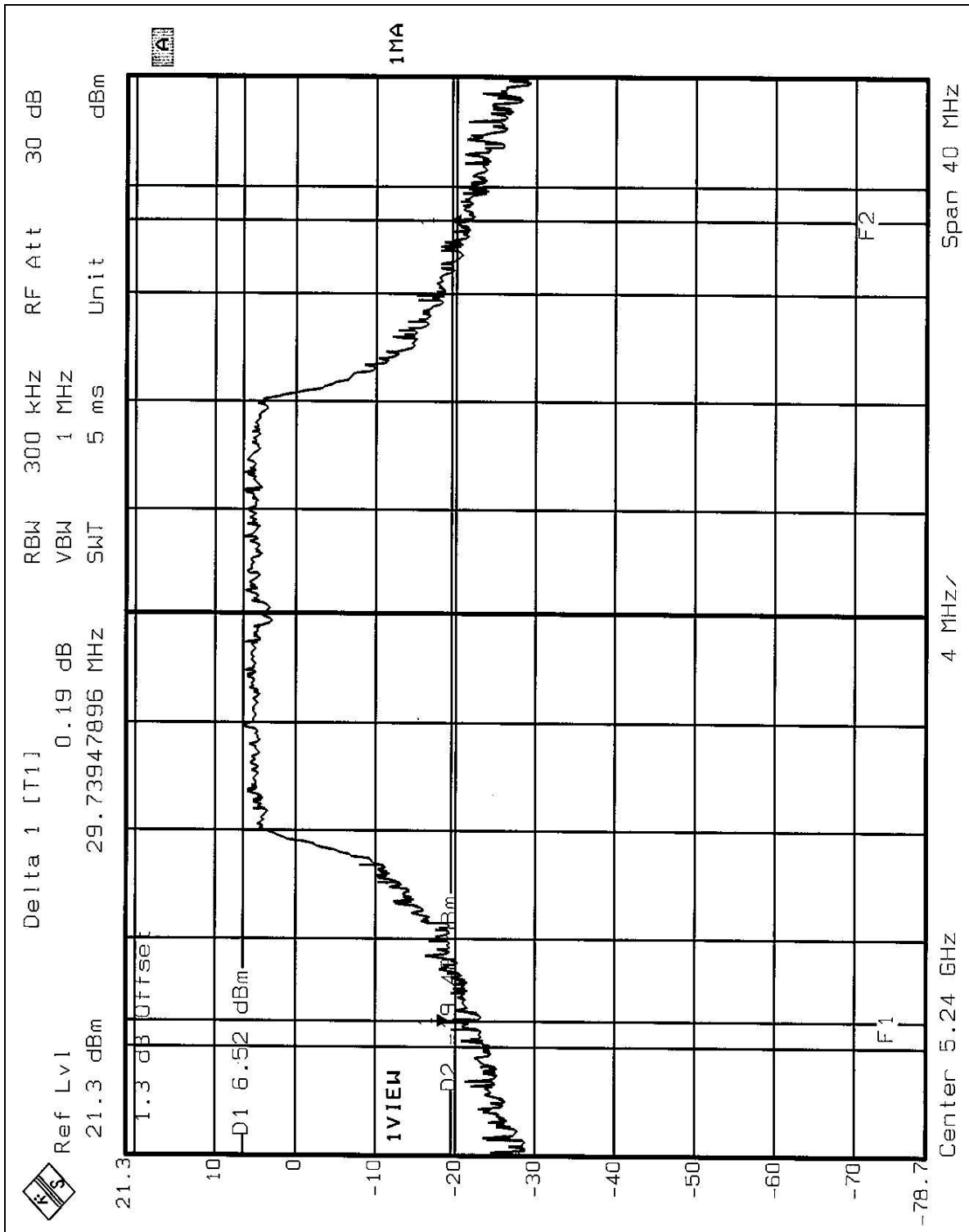
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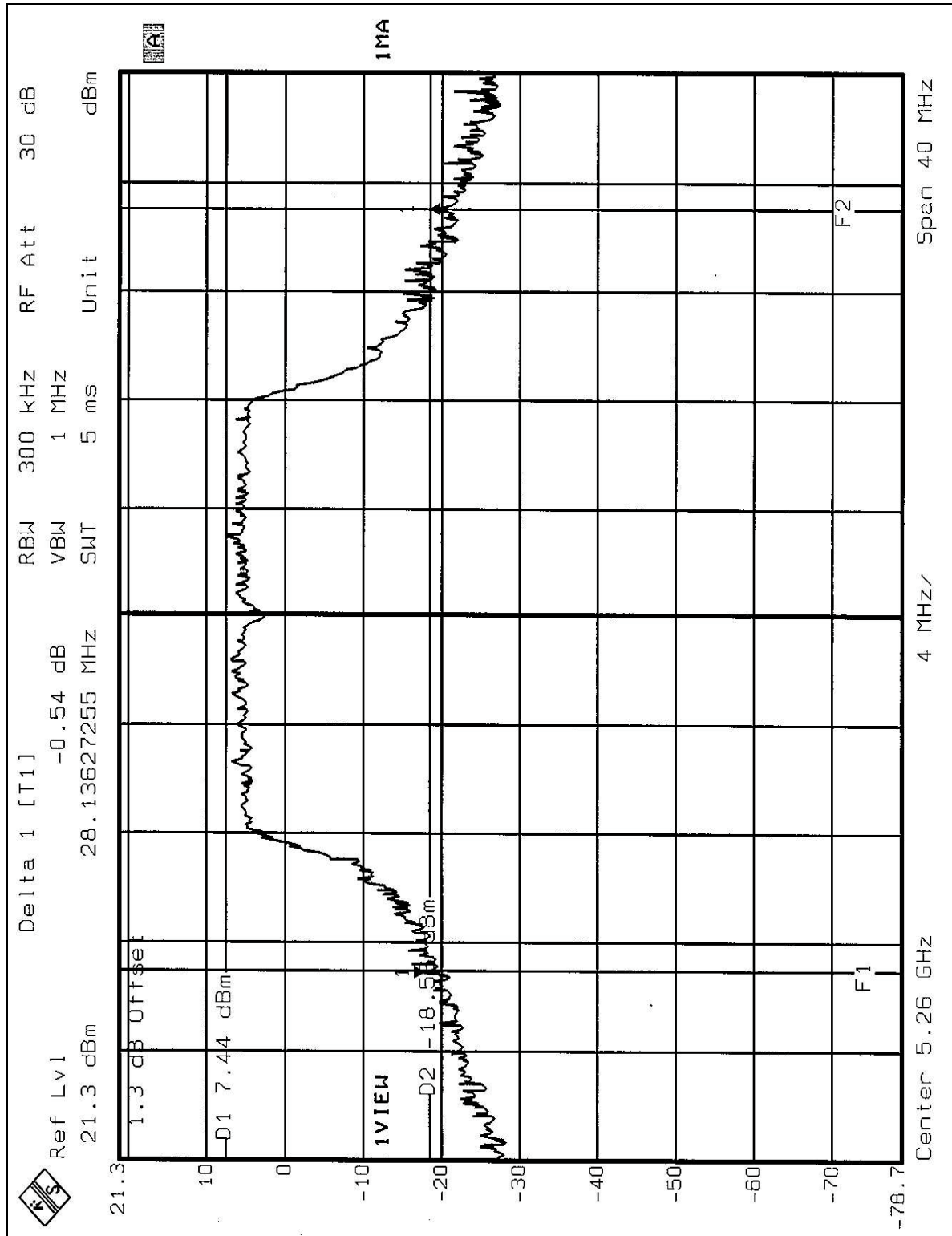
26dB Occupied Bandwidth:
CH1



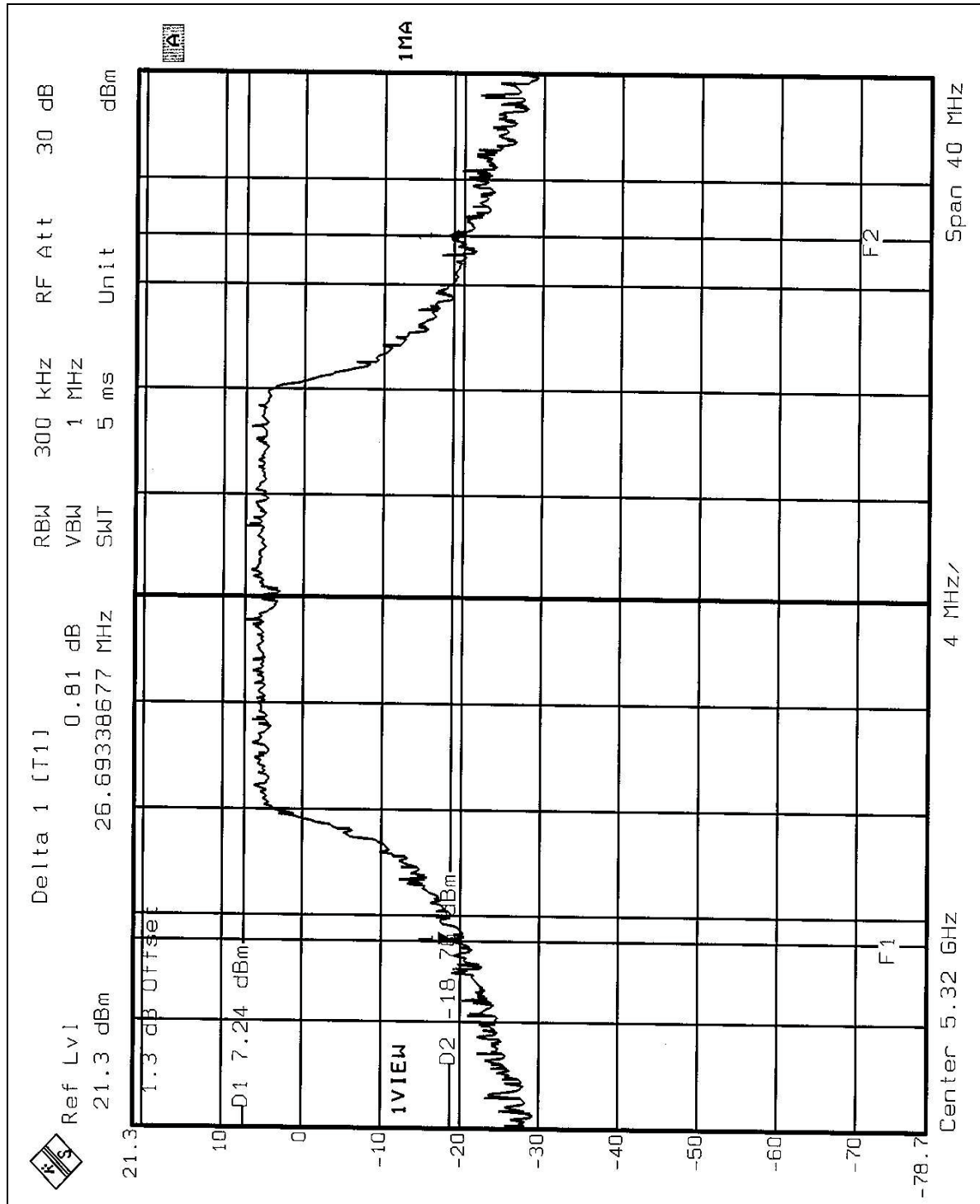
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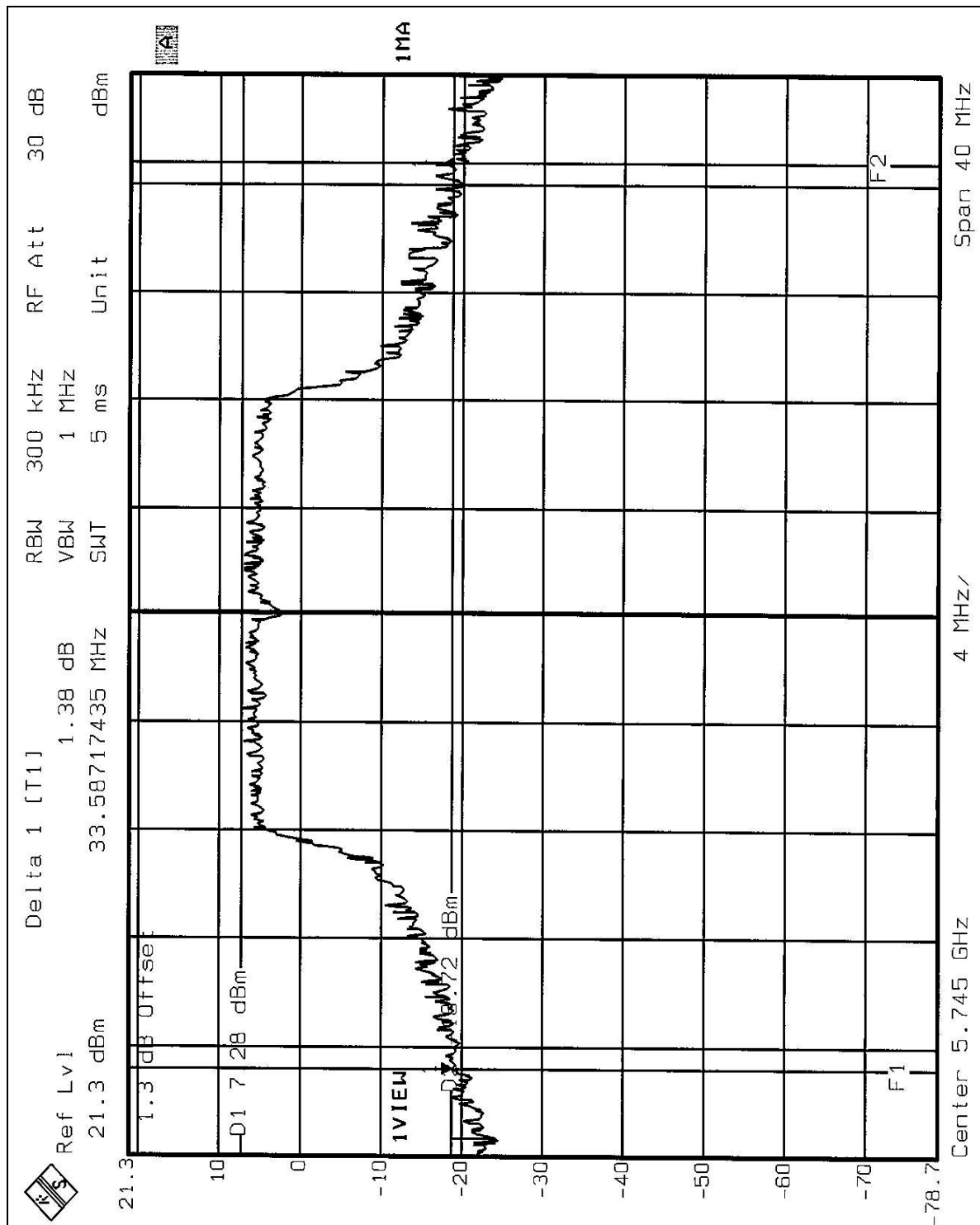
CH5



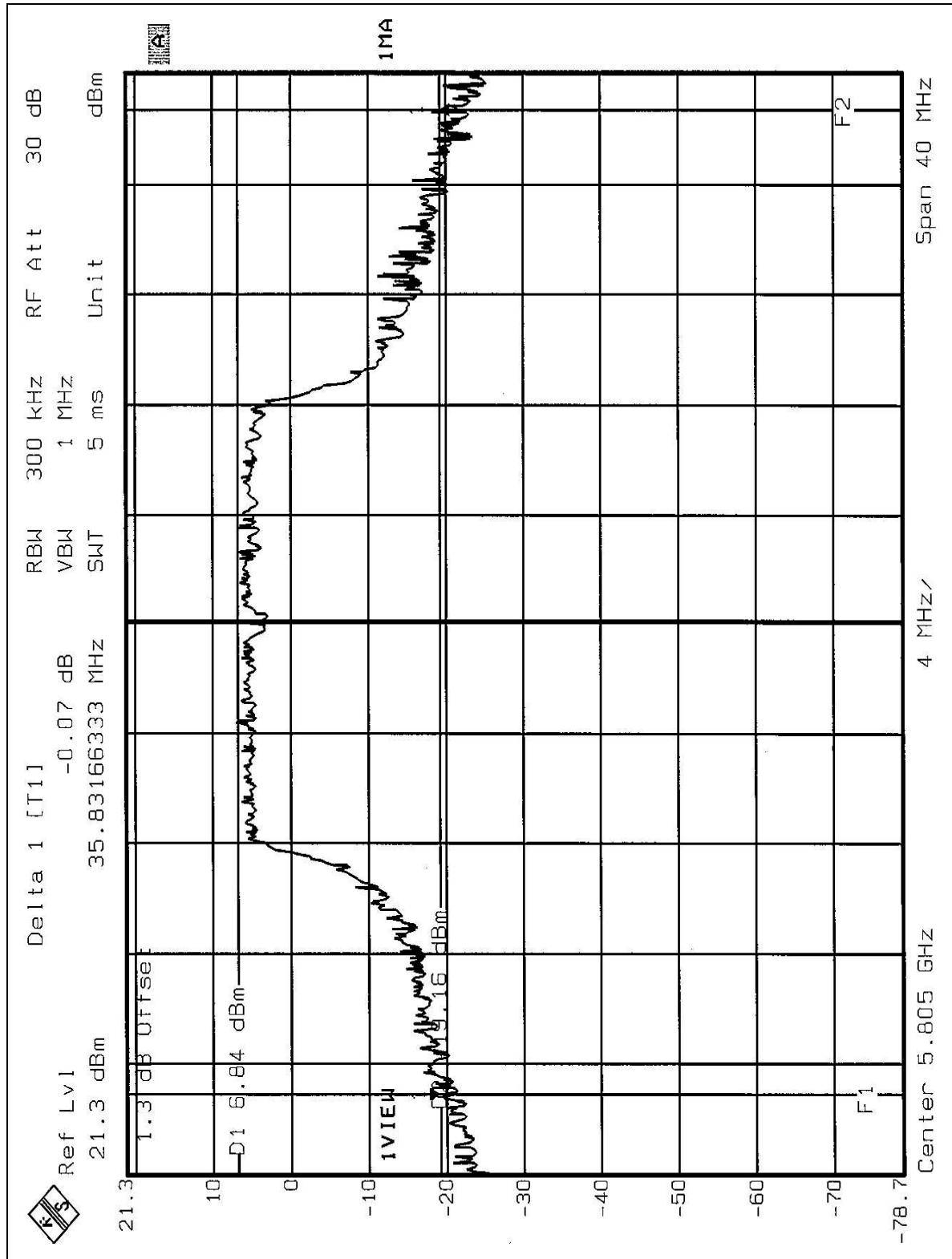
CH8



CH9



CH12





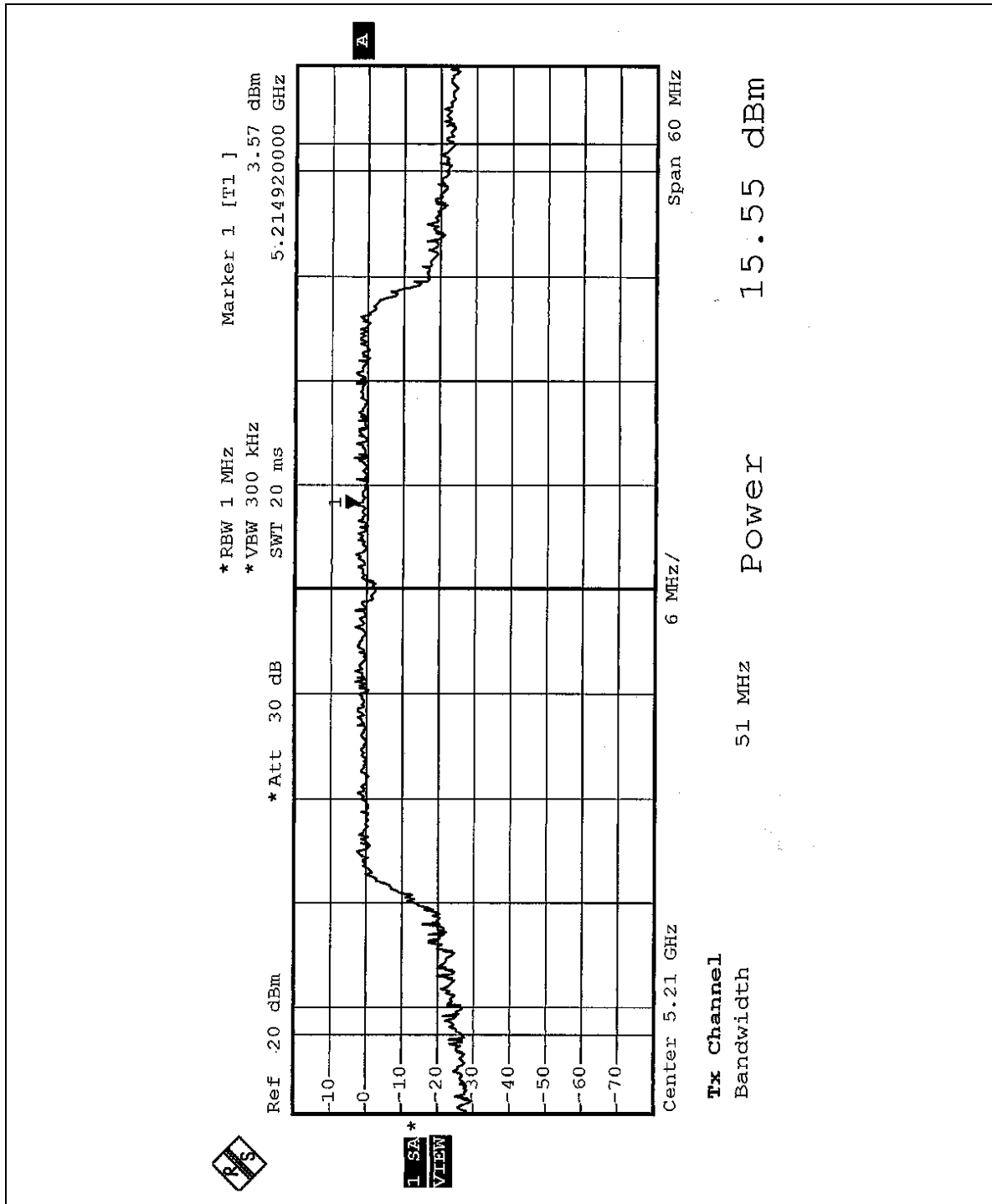
EUT	Mini- PCI CARD	MODEL	WLL4030
MODE	Turbo	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa	TESTED BY	Leo Hung

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5210	35.892	15.55	17.00	50.04	PASS
2	5250	36.141	15.58	17.00	49.80	PASS
3	5290	35.645	15.52	24.00	45.72	PASS
4	5760	34.514	15.38	30.00	47.04	PASS
5	5800	34.198	15.34	30.00	50.88	PASS

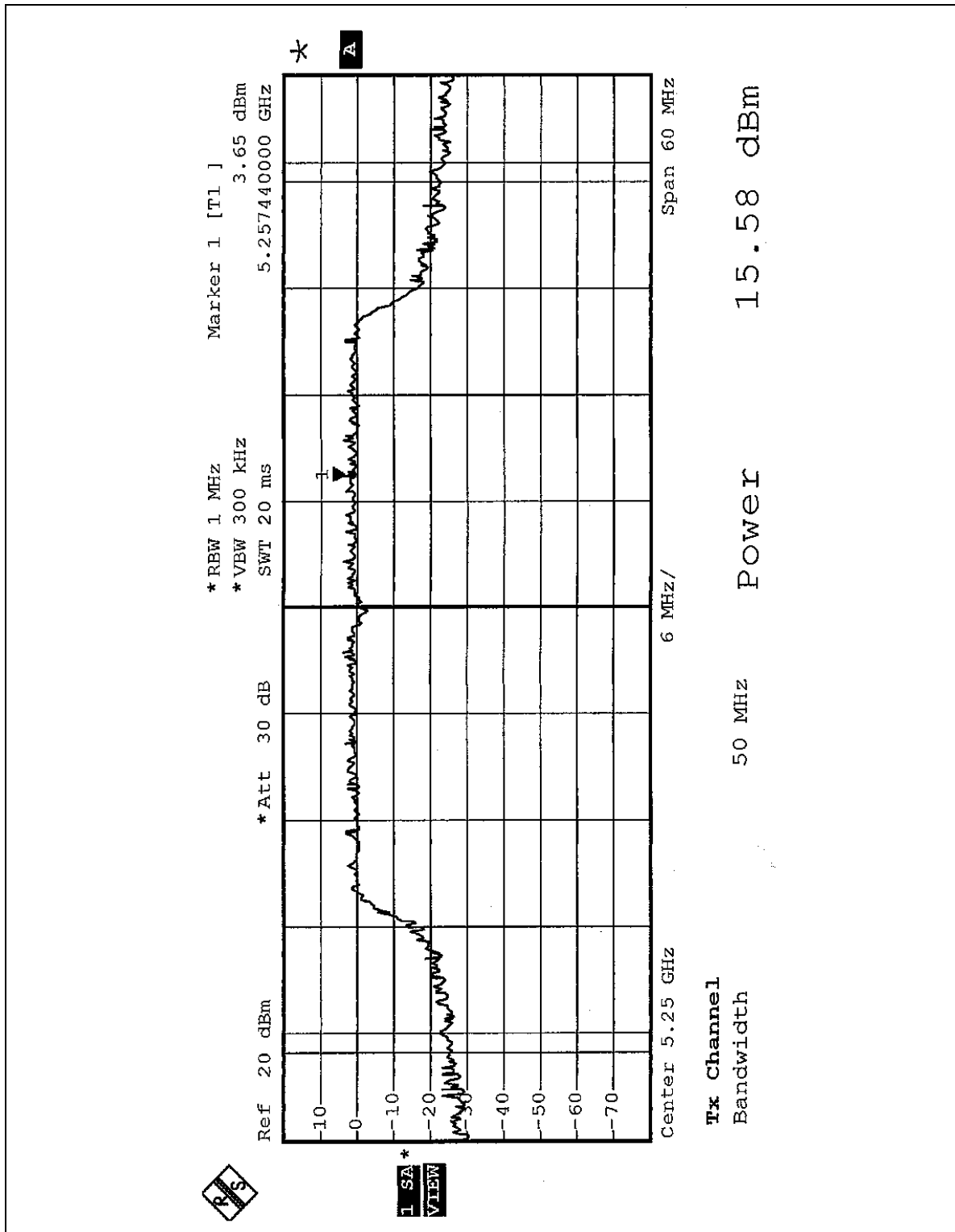
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

Peak Power Output:

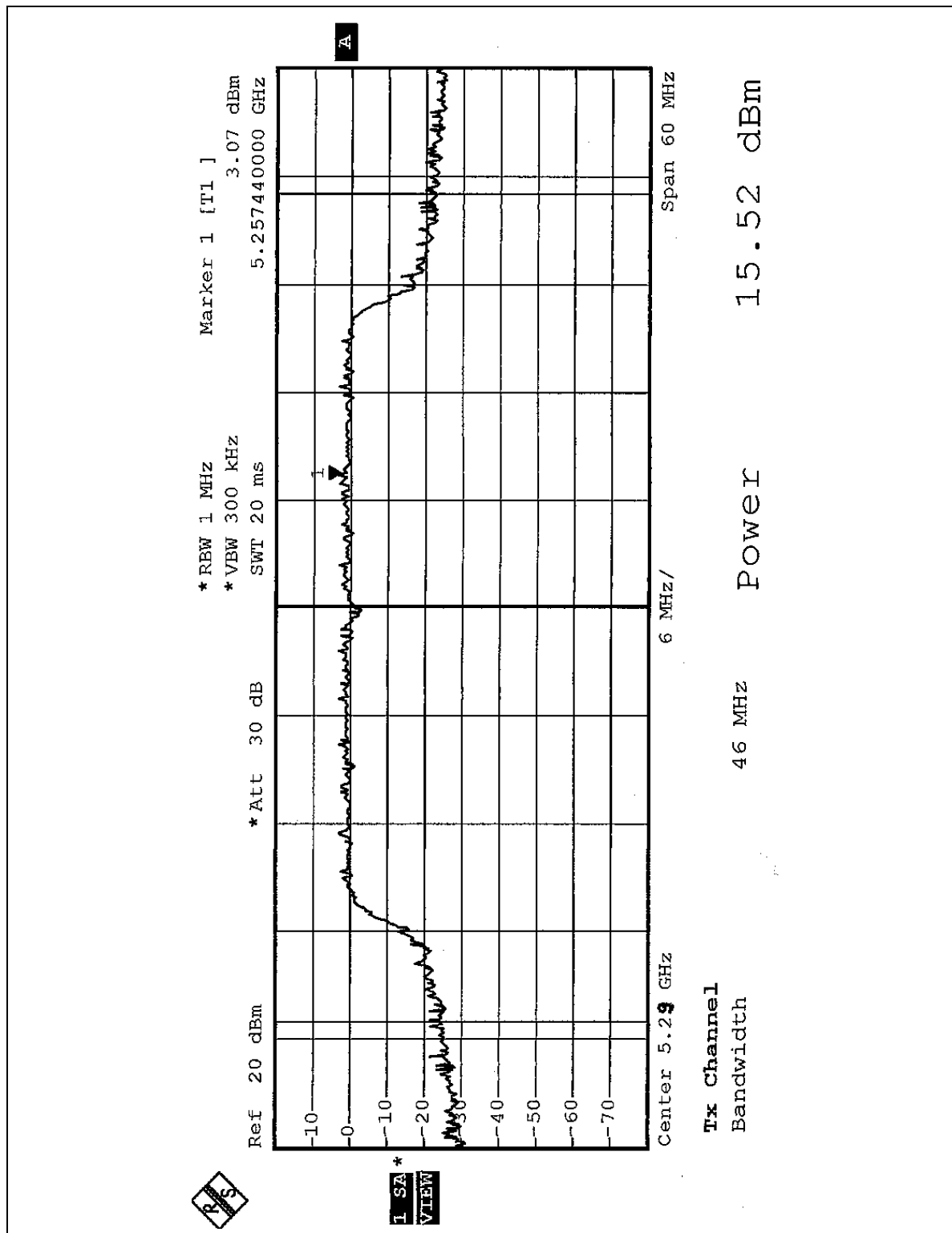
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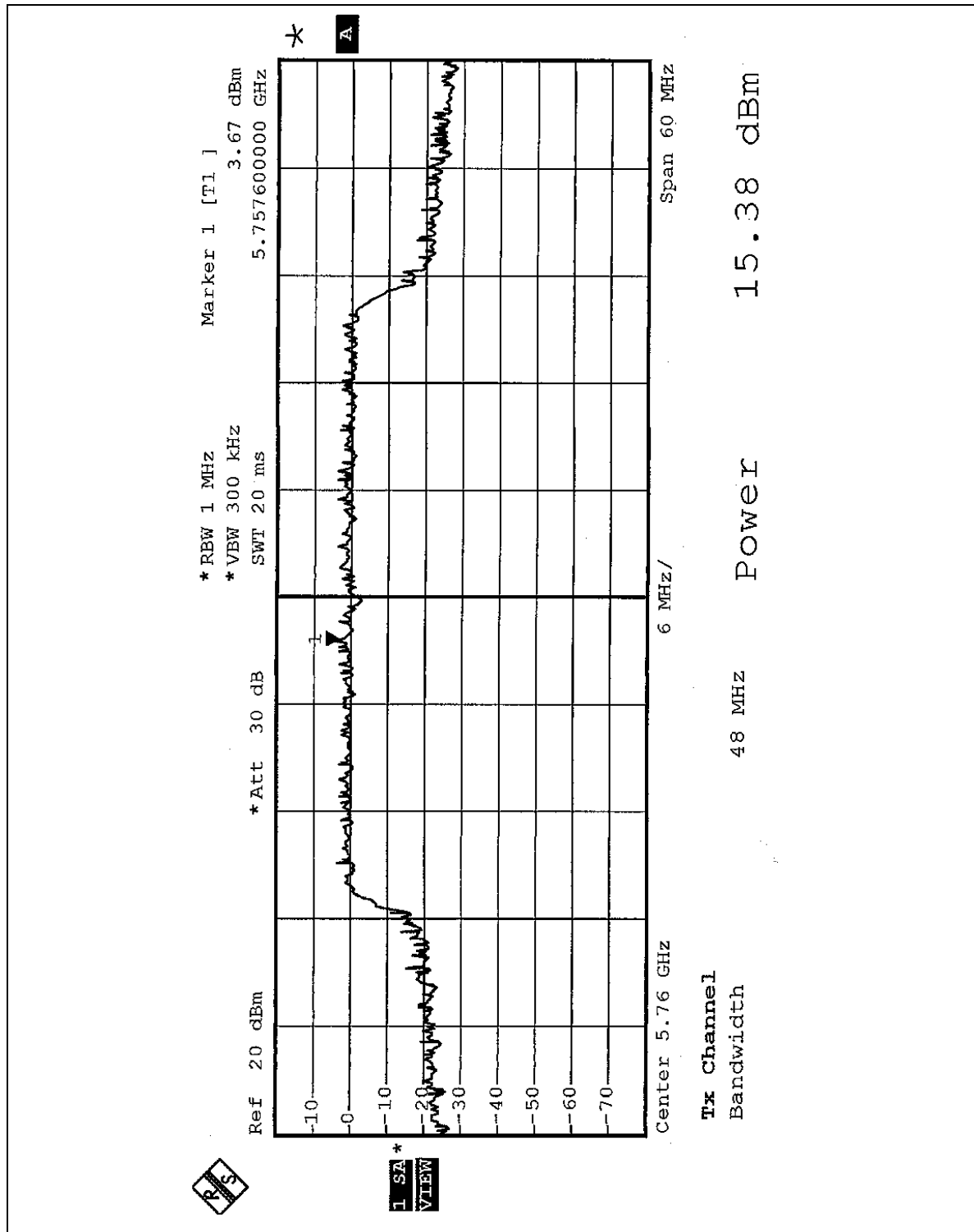
CH 2



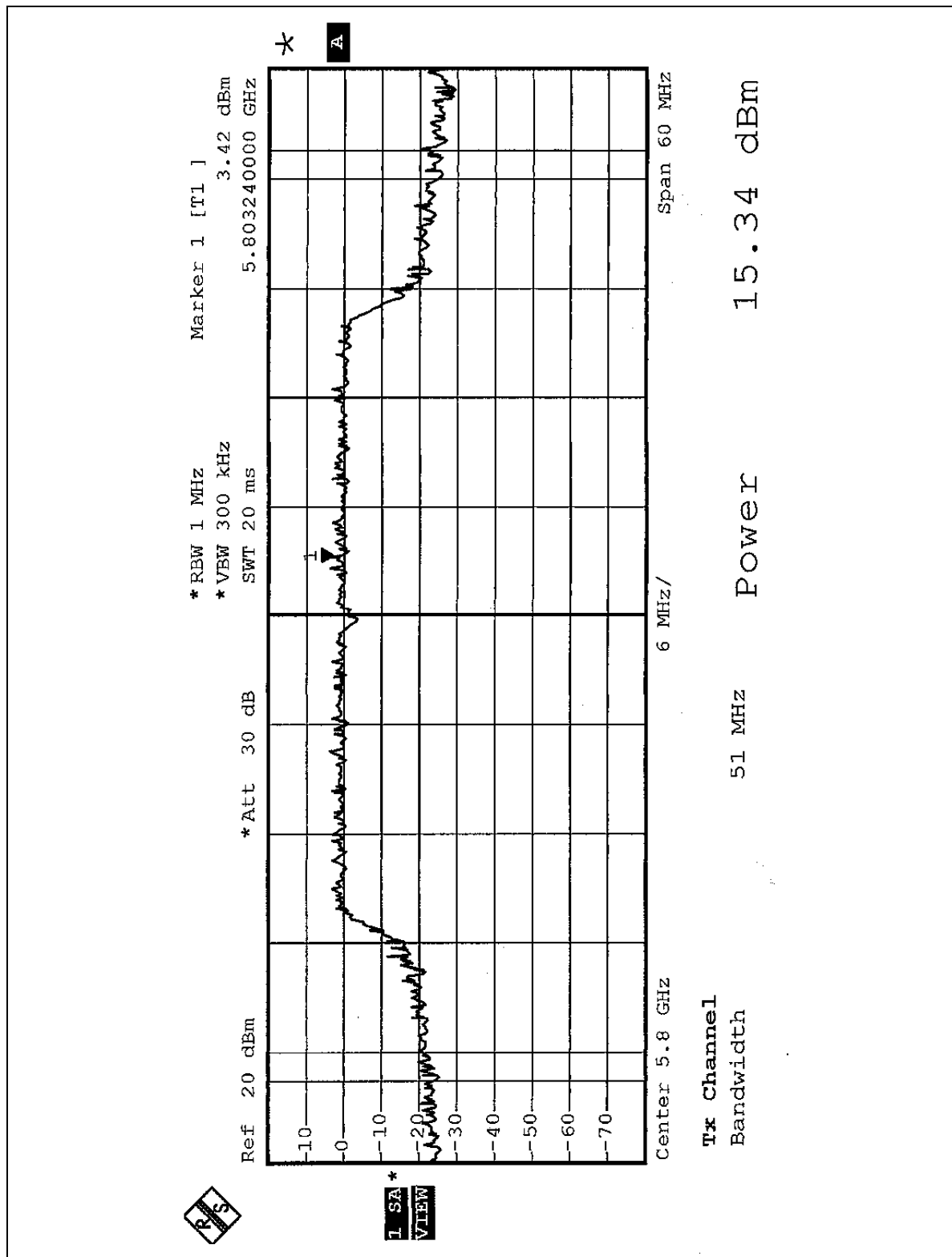
CH 3



CH 4

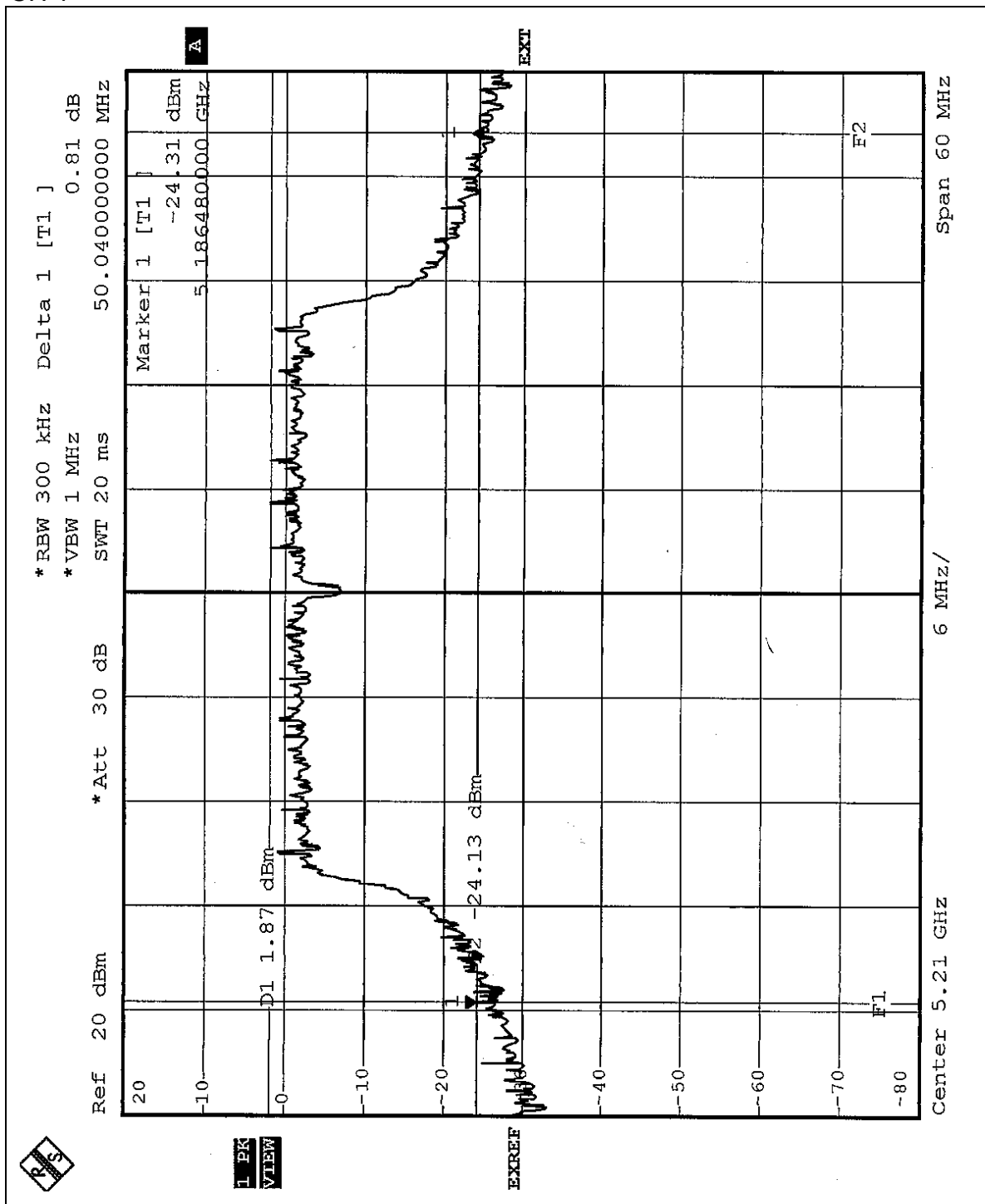


CH 5

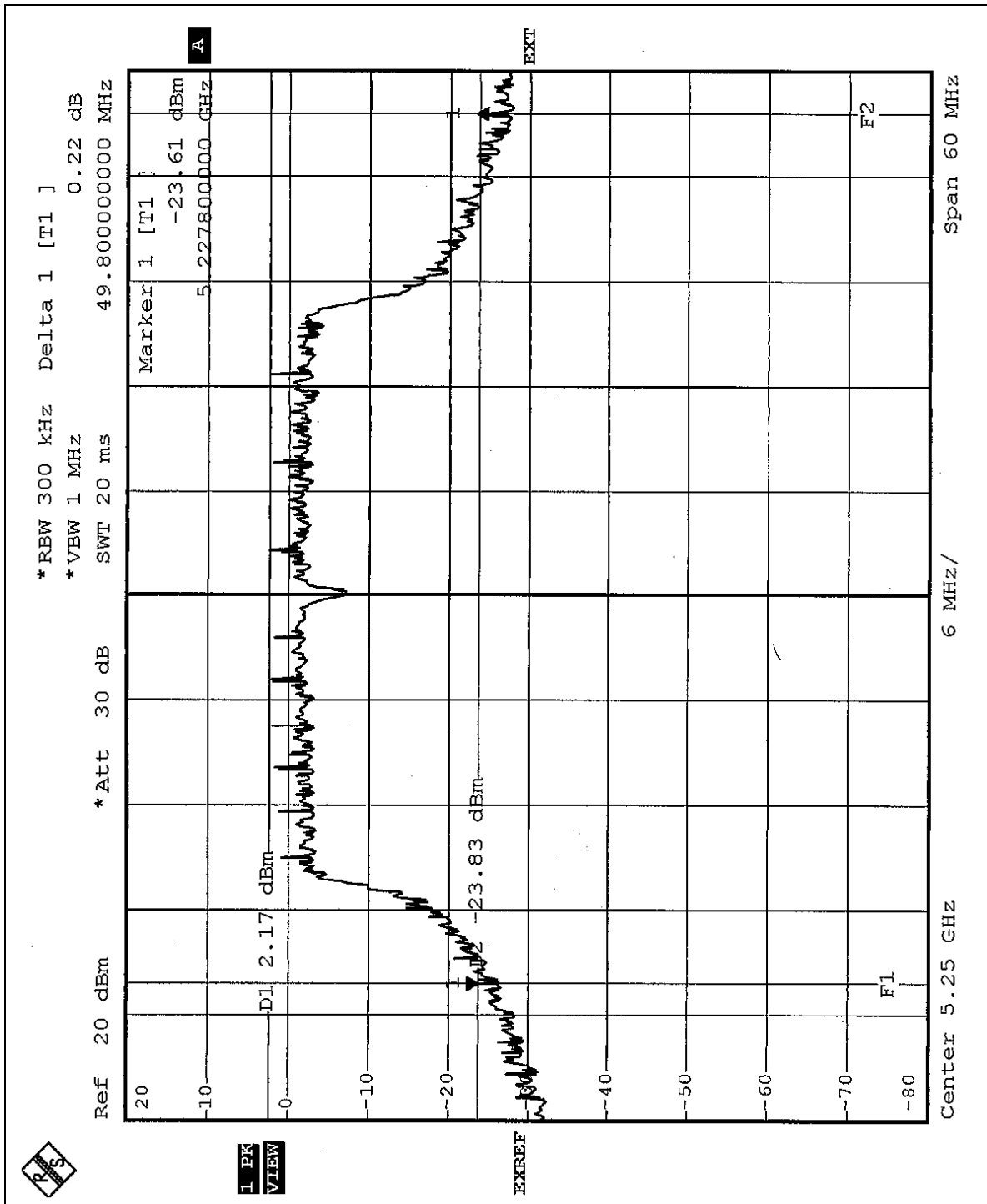


26dB Occupied Bandwidth:

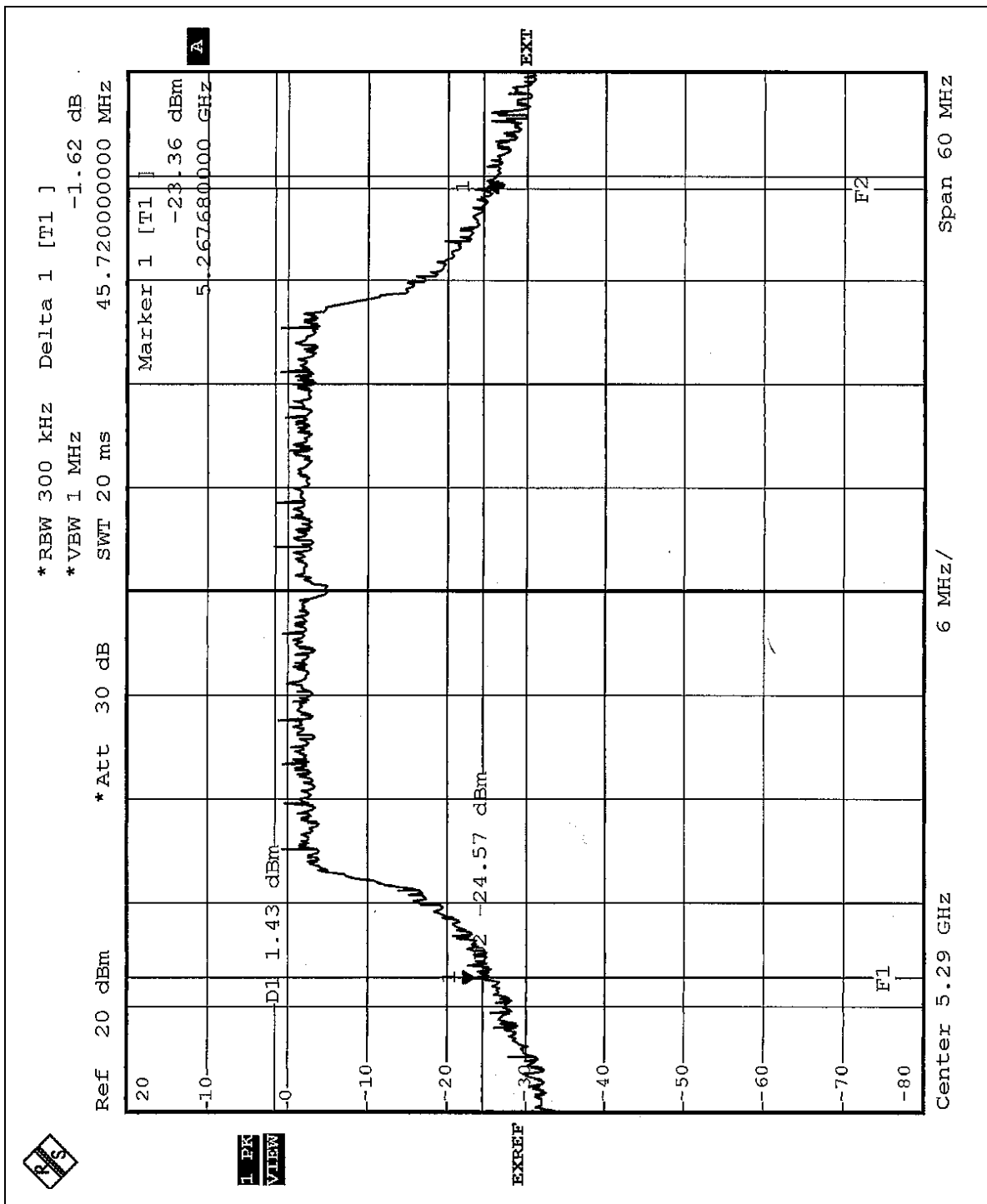
CH 1



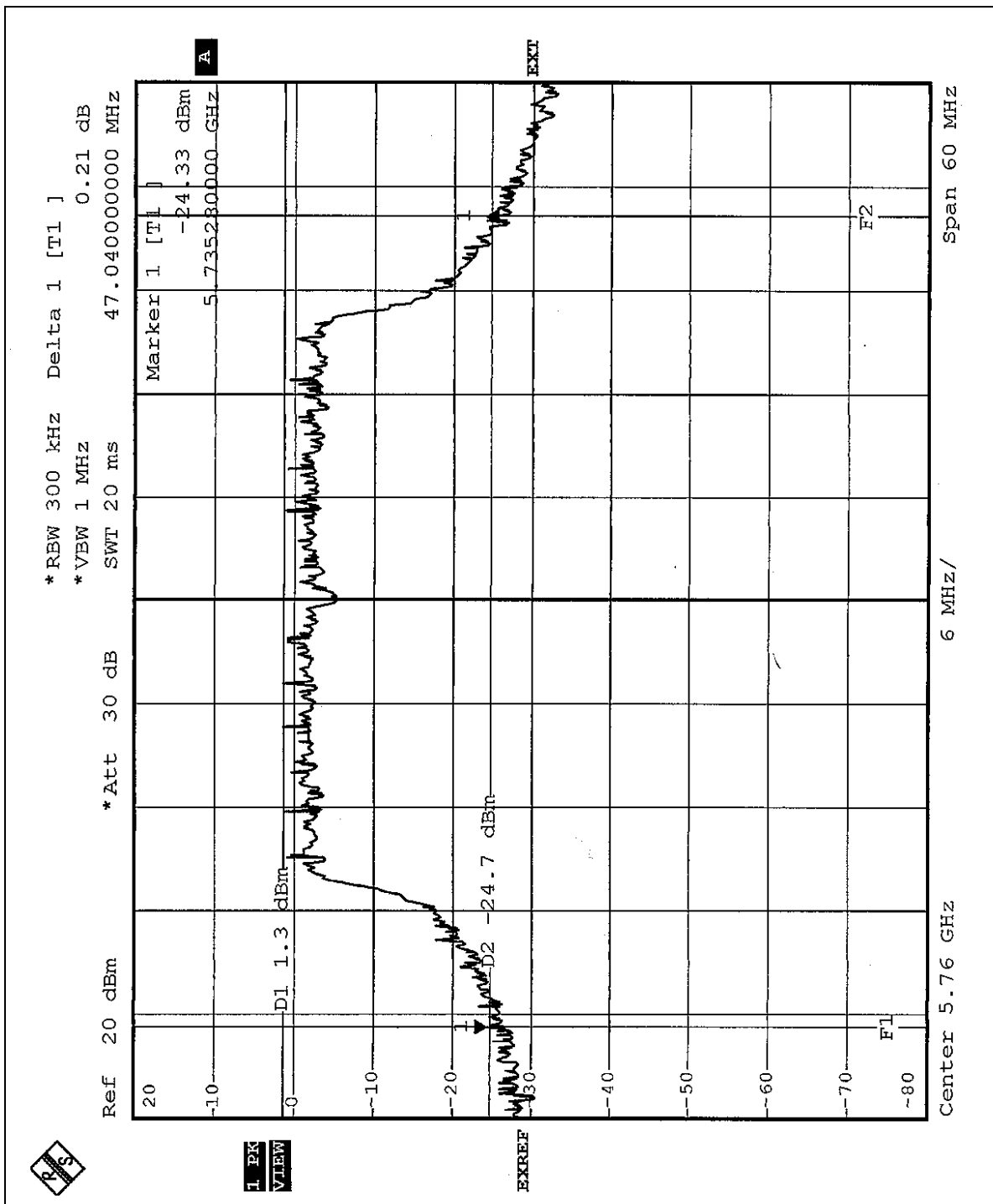
CH 2



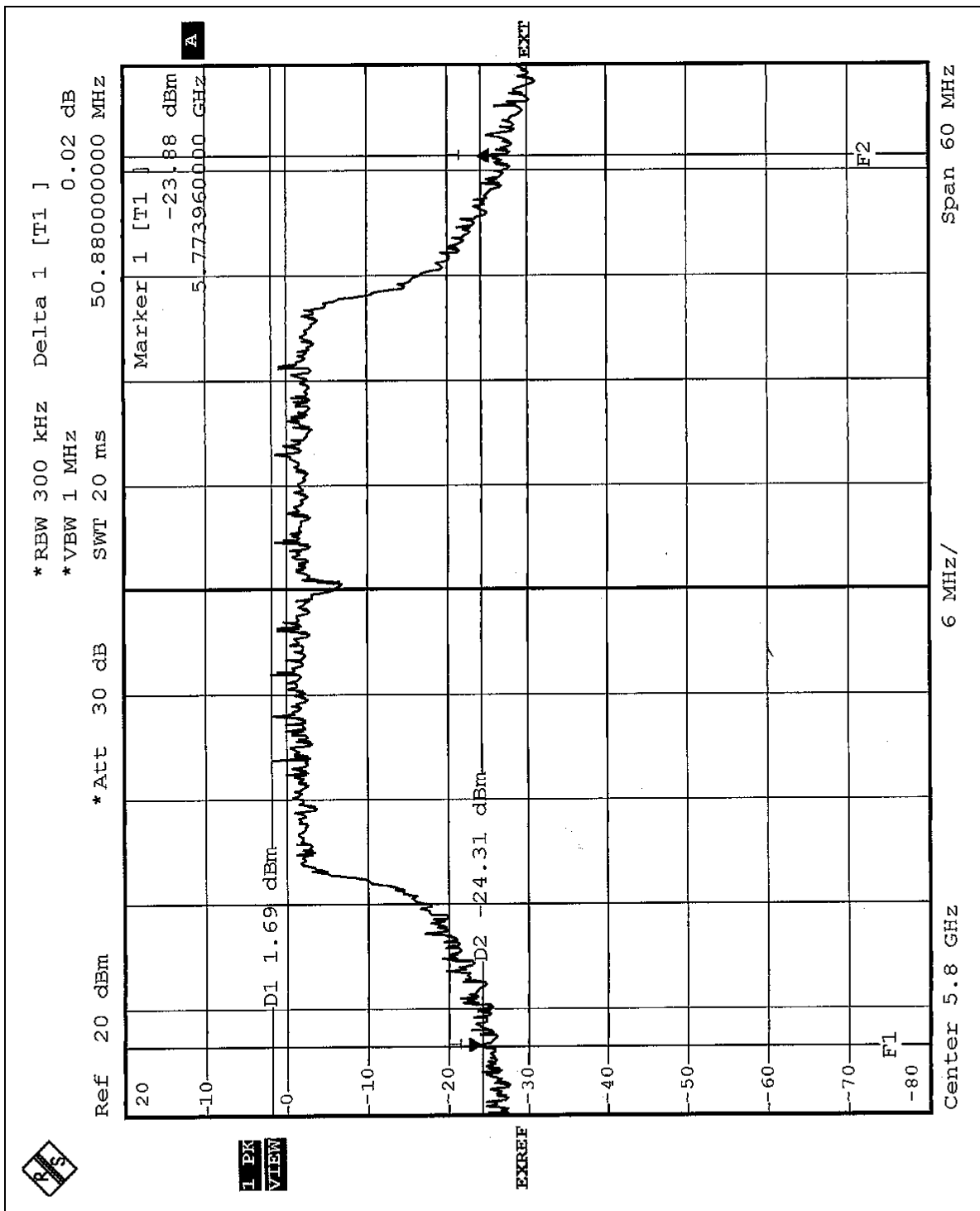
CH 3



CH 4



CH 5



5.4 PEAK POWER EXCURSION MEASUREMENT

5.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	13dB
5.25 – 5.35 GHz	13dB
5.725 – 5.825 GHz	13dB

5.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

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

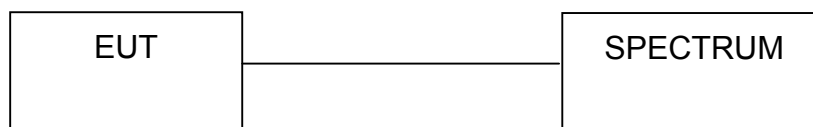
5.4.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set the spectrum bandwidth span to view the entire spectrum.
3. Using peak detector and Max-hold function for Trace 1 (RB=1MHz, VB=3MHz) and 2 (RB=1MHz, VB=300KHz).
4. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

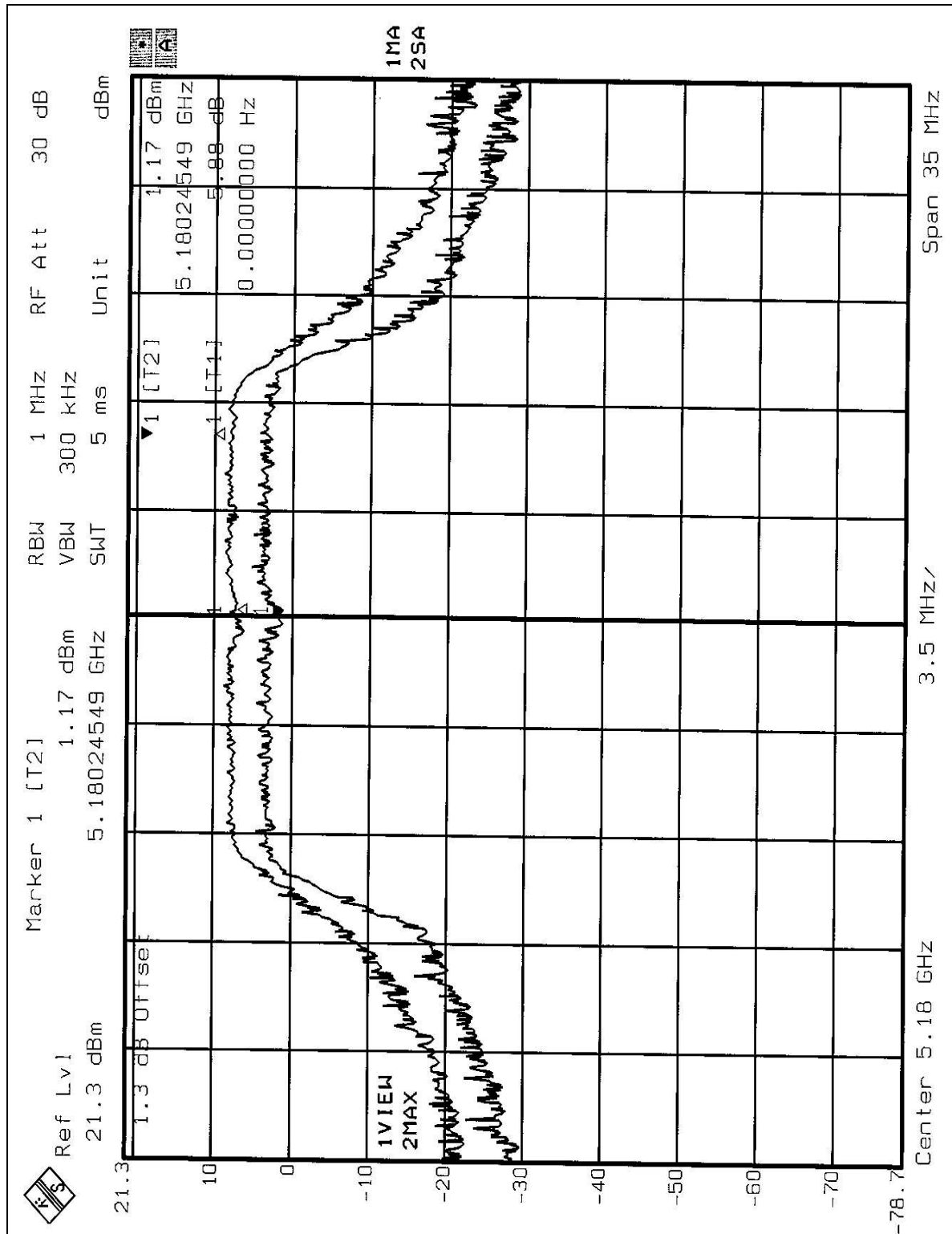
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

5.4.7 TEST RESULTS

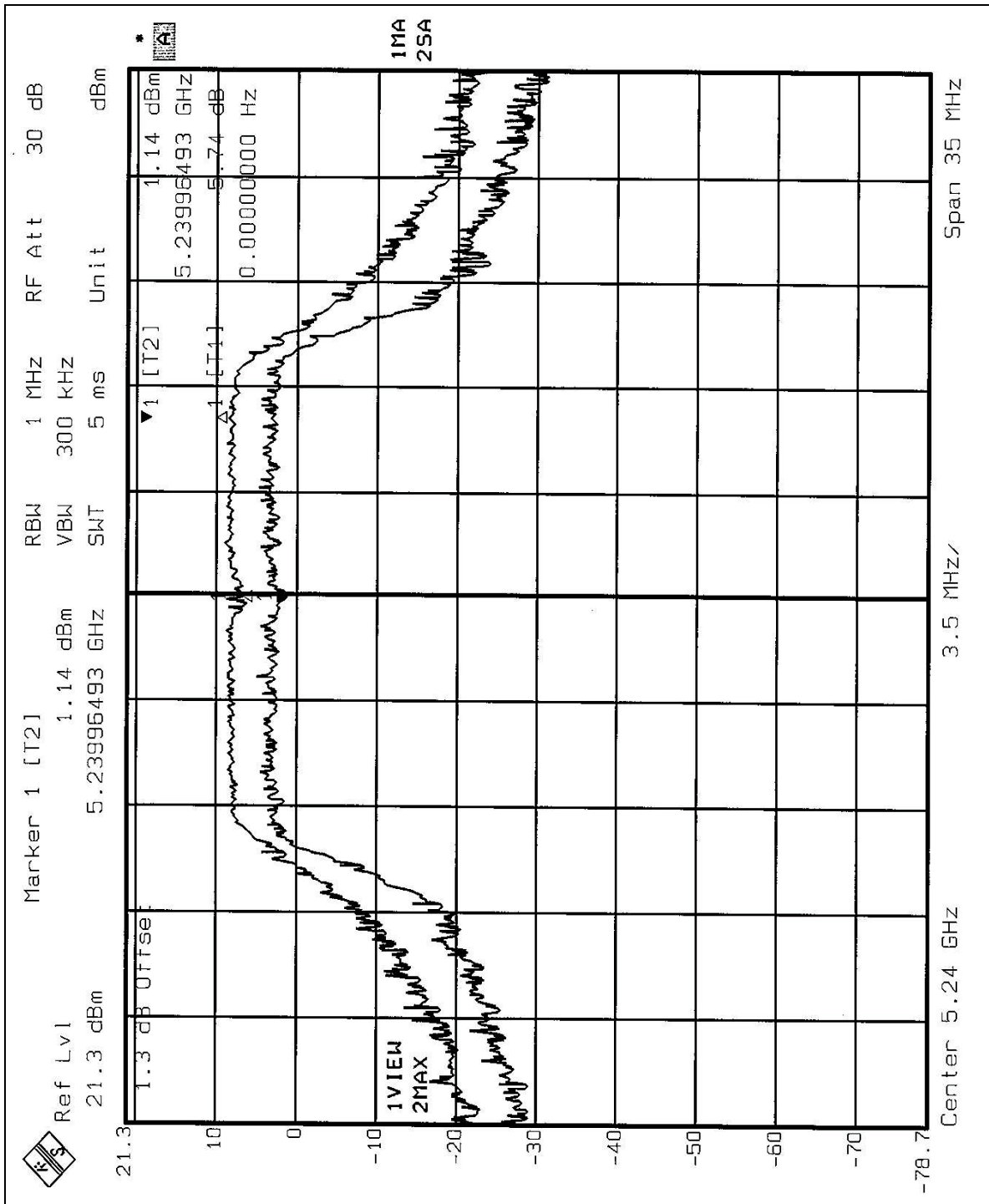
EUT	Mini- PCI CARD	MODEL	WLL4030
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 991hPa	INPUT POWER (SYSTEM)	120Vac, 60 Hz
MODE	Normal	TESTED BY	Ansen Lei

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5180	5.88	13	PASS
4	5240	5.74	13	PASS
5	5260	6.32	13	PASS
8	5320	6.21	13	PASS
9	5745	6.01	13	PASS
12	5805	7.03	13	PASS

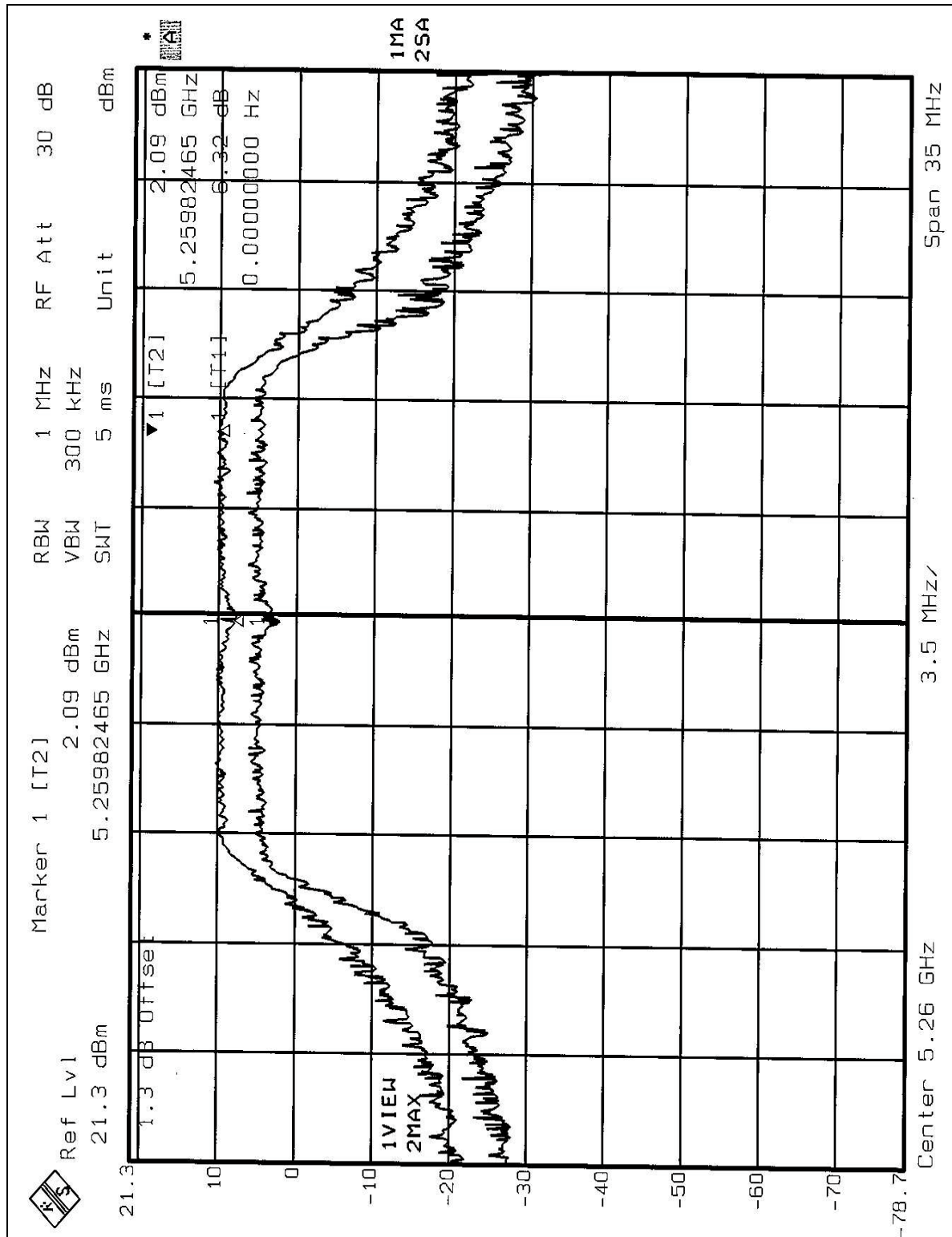
CH1



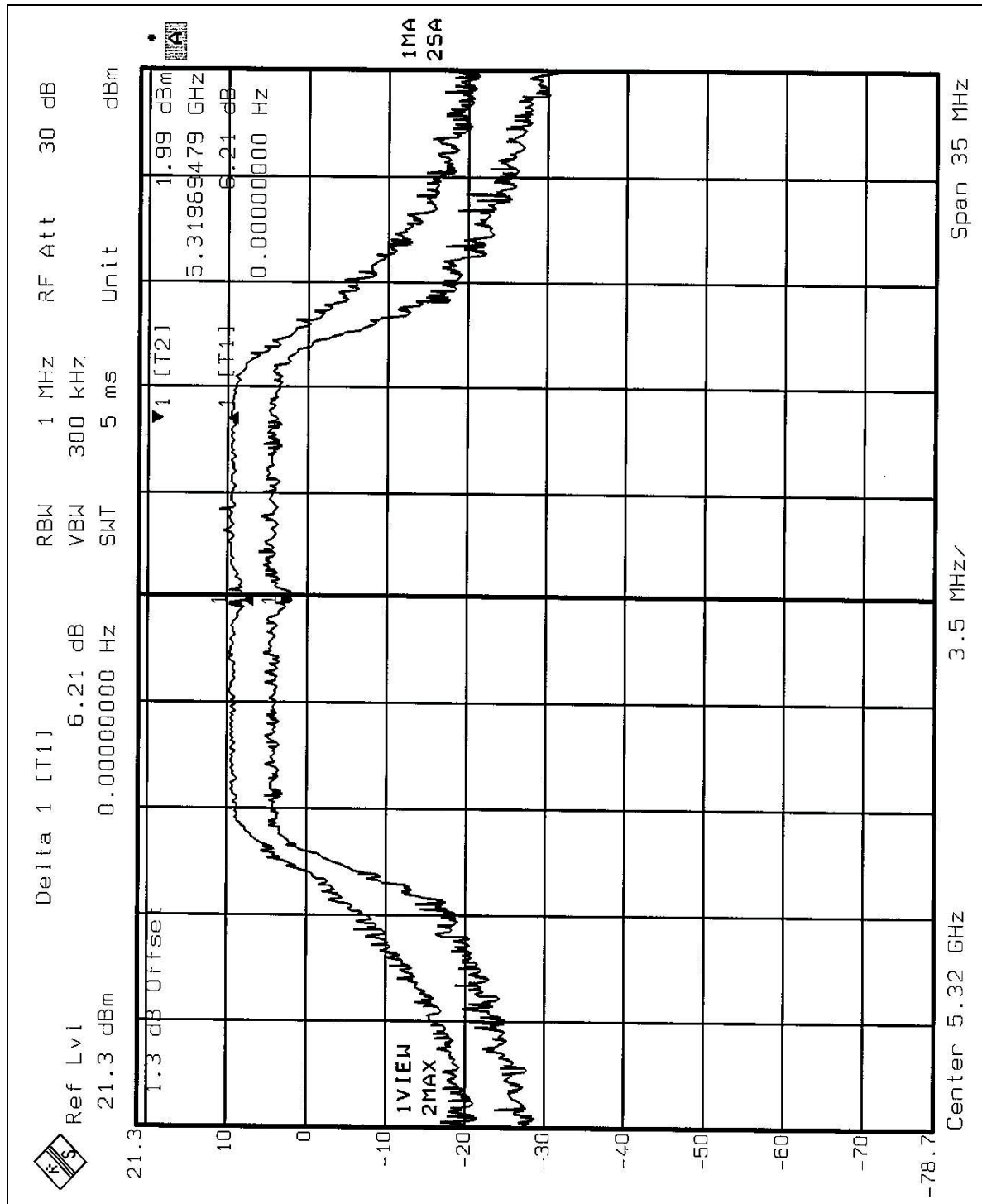
CH4



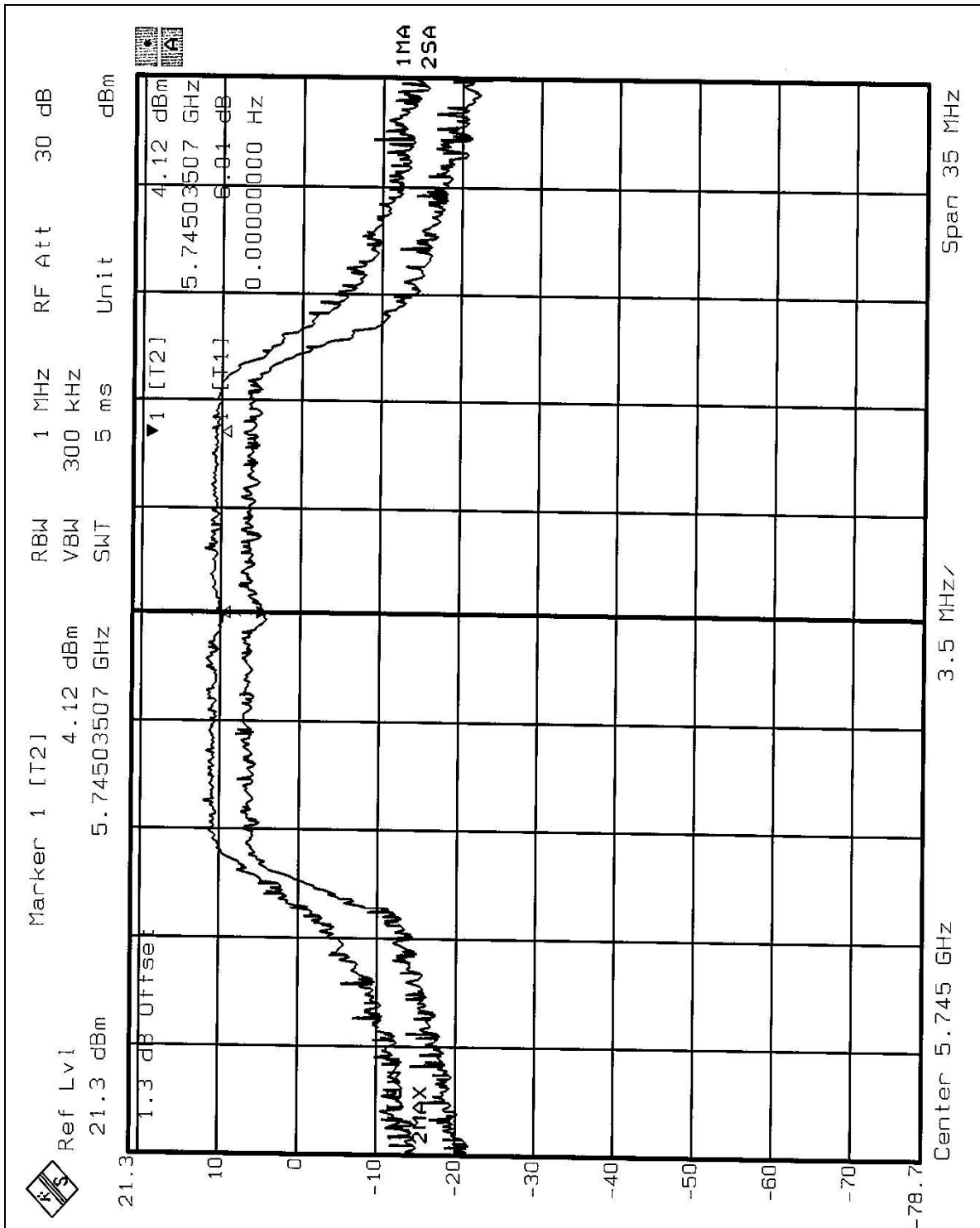
CH5



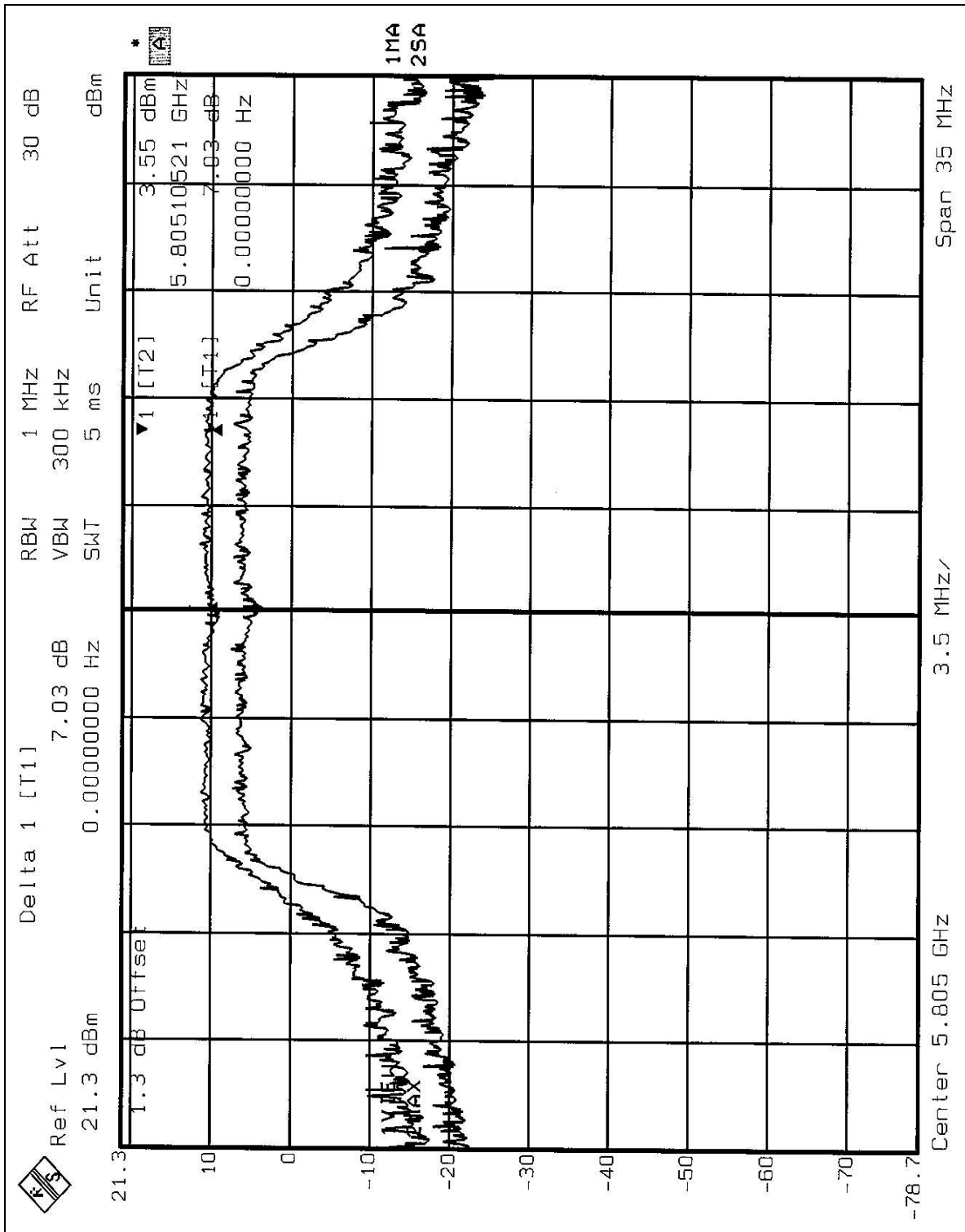
CH8



CH9



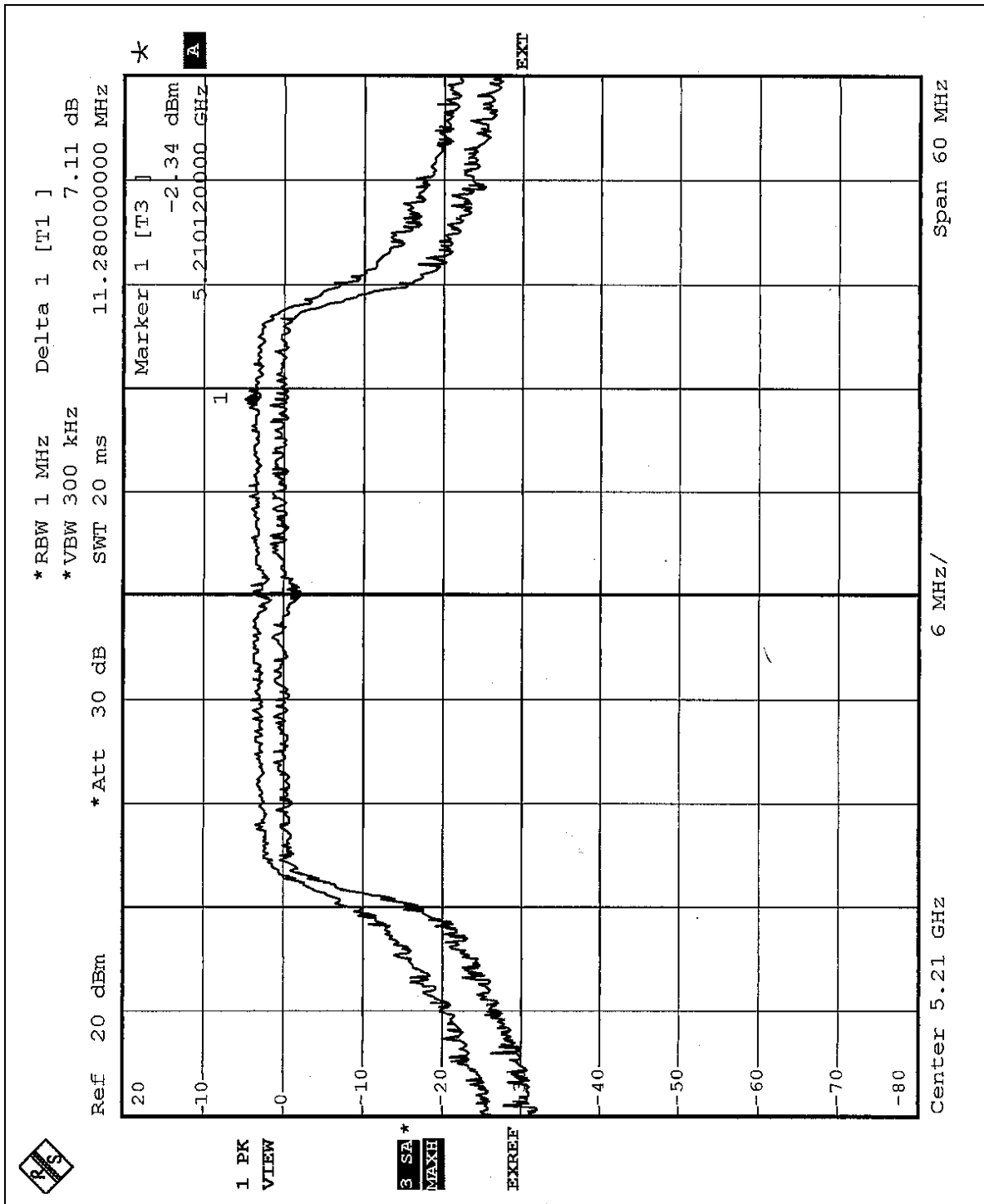
CH12



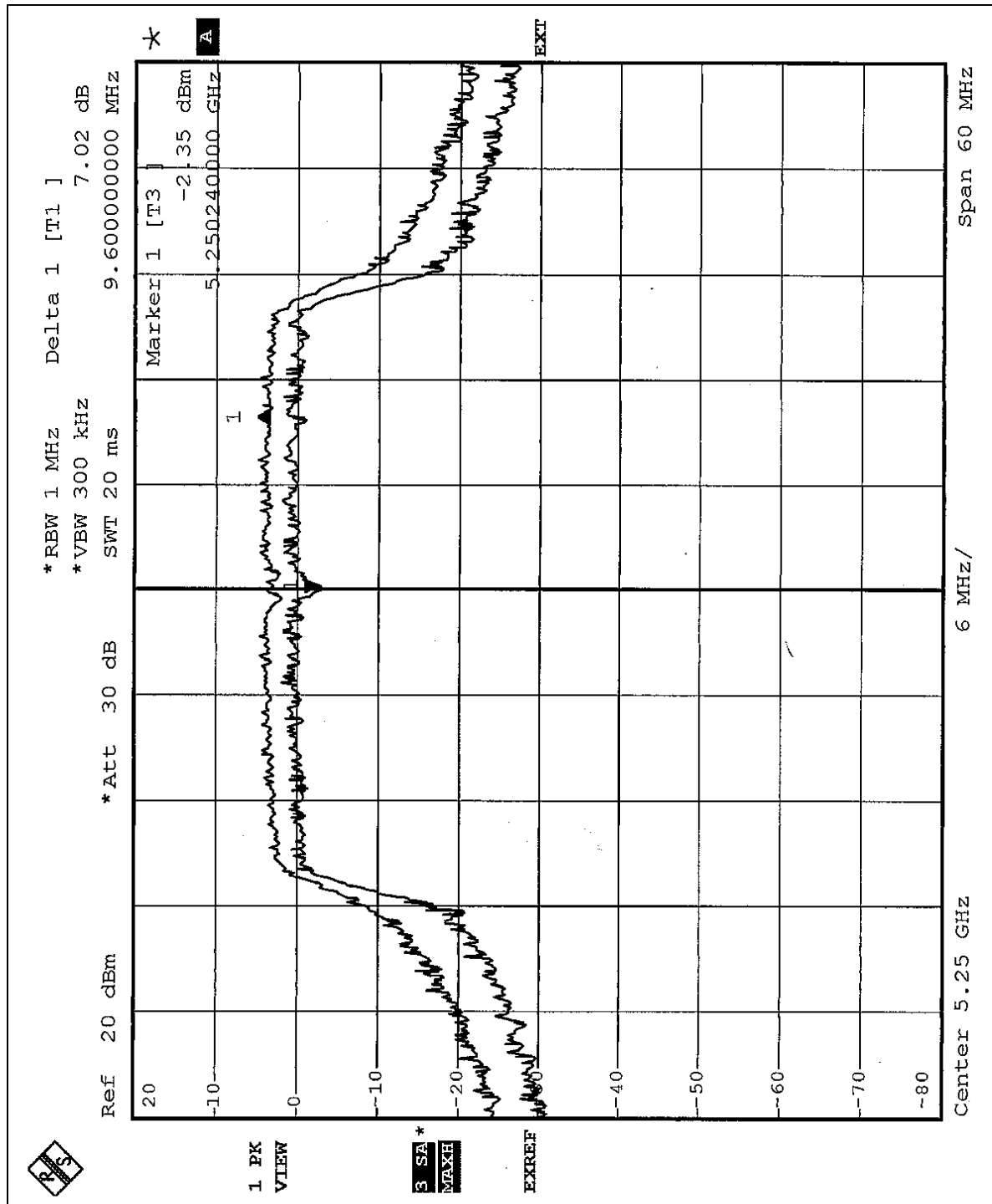
EUT	Mini- PCI CARD	MODEL	WLL4030
MODE	Turbo	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa	TESTED BY	Leo Hung

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5210	7.11	13	PASS
2	5250	7.02	13	PASS
3	5290	8.42	13	PASS
4	5760	7.65	13	PASS
5	5800	8.01	13	PASS

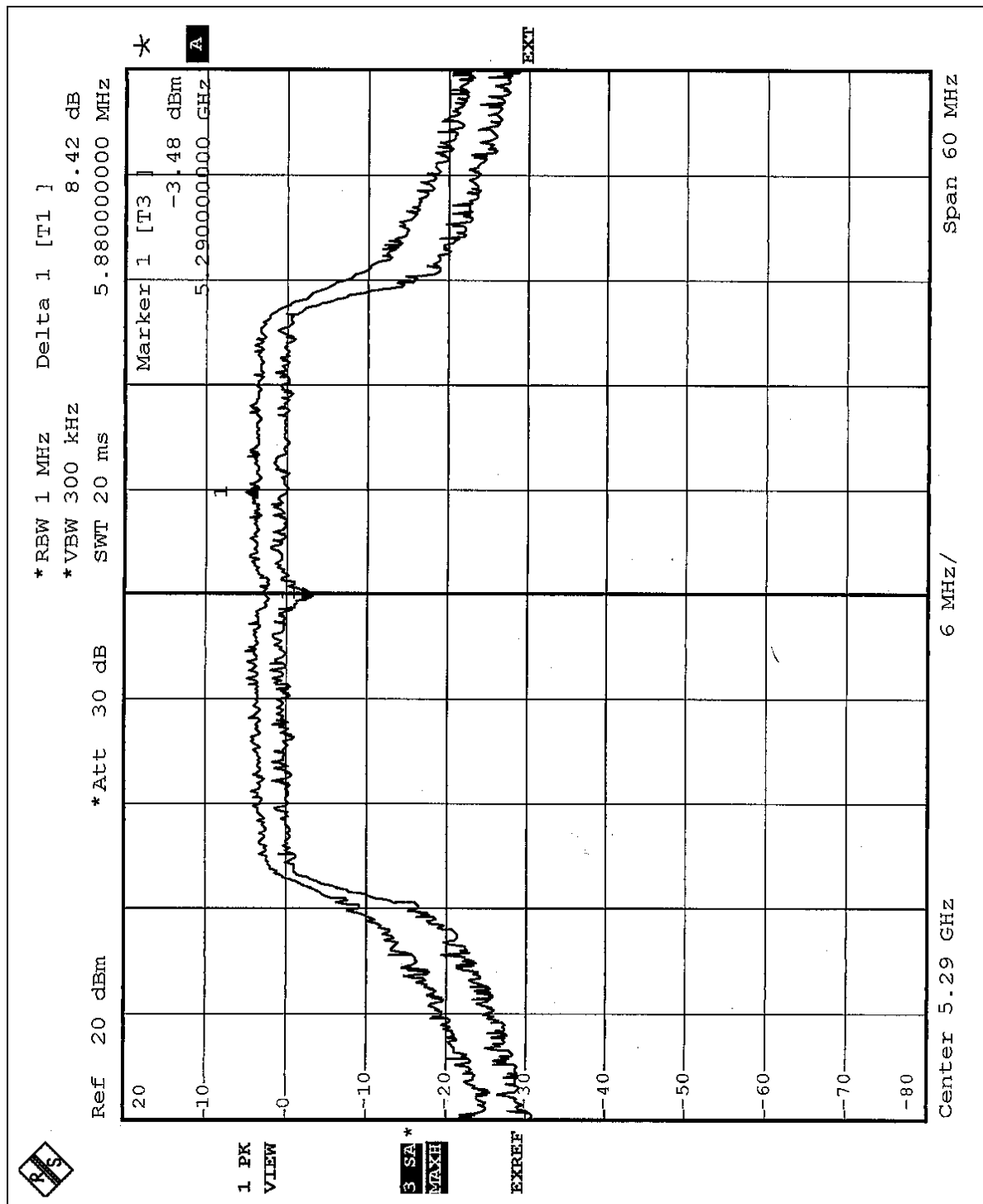
CH 1



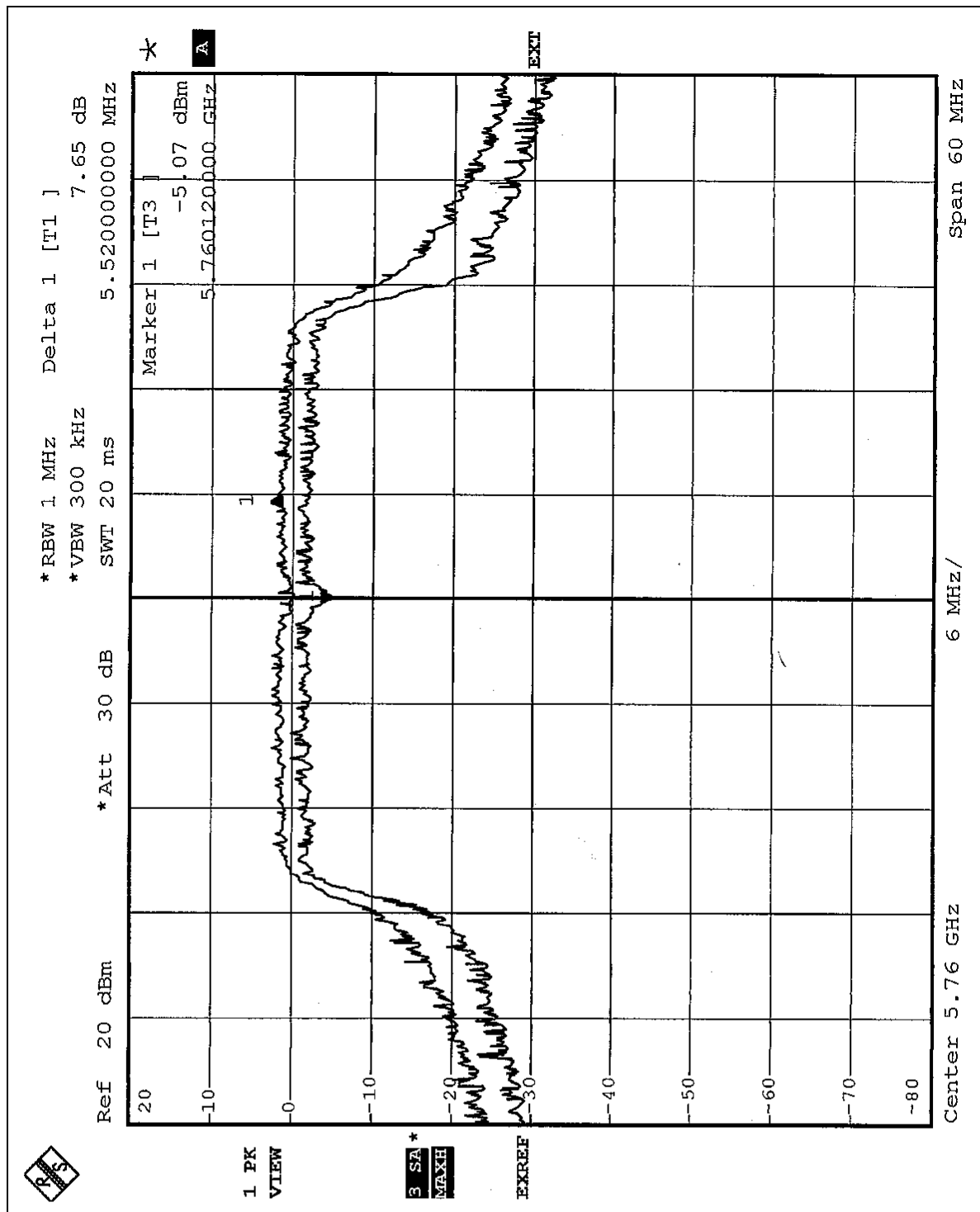
CH 2



CH 3



CH 4



CH 5

