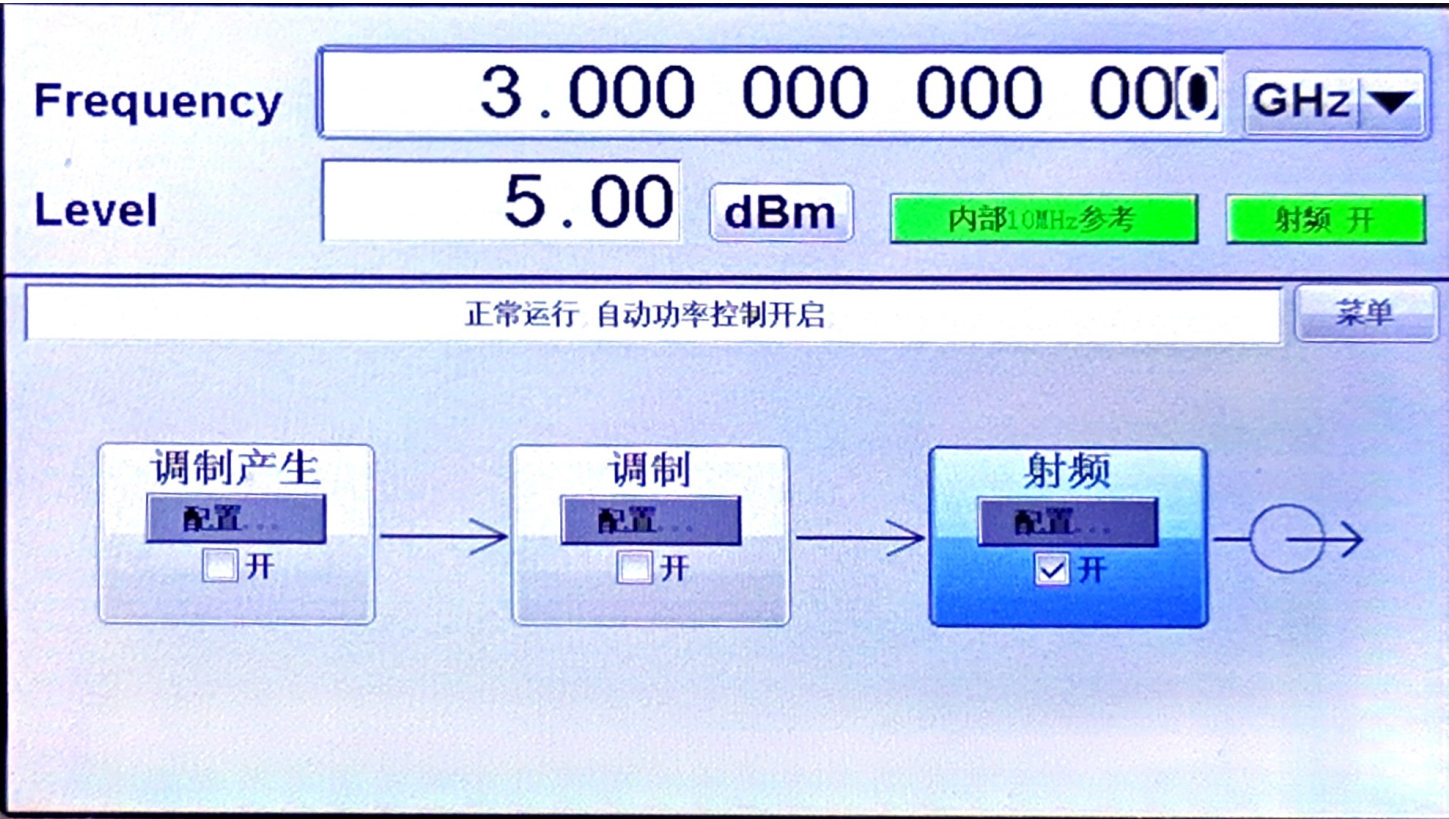


测试条件说明

时钟配置

- 时钟型号：SLFS40A-pro
- 时钟频率：3GHz
- 时钟功率：5dbm



电源配置

- 底板供电：+12V供电，限流1.5A
- 芯片供电：+2.3V供电，限流3A
- 底板与芯片共地

操作步骤	电流
底板供电	0.212A
芯片供电	0.212A

操作步骤	电流
下载固件	0.212A
复位	0.212A
时钟输入	0.212A
连接上位机	0.212A
配置时钟	0.420A
工作模式	0.558A

复位状态



DEM_SET设为0



测试环境问题记录

重要问题记录:

- 上电时如果DEM_SET不配置为0会有类似正弦波的波形输出，DEM_SET设置为0后恢复正常

功耗测试

100MHz单音NCO载波调制的余弦波形（单频点）

时间占空比	1V P2S (mA)	1V ENCODER (mA)	1V 数字内核电流 (mA)	1.8V 模拟电流 (mA)
1/10	141.1	64.1	71.7	53
1/9	141.2	64.1	71.4	53
1/8	141.3	64.1	71.8	53

时间 占空比	1V P2S (mA)	1V ENCODER (mA)	1V 数字内核电流 (mA)	1. 8V 模拟电流 (mA)
1/7	141. 3	64. 3	72. 2	53
1/6	141. 3	64. 5	72. 9	53
1/5	141. 4	65. 1	77. 2	53
1/4	141. 4	65. 8	77. 5	53
1/3	141. 4	65. 8	77. 5	53
1/2	141. 6	67	81. 9	53
100%	142. 2	70. 6	95	53

100MHz单音NCO载波调制的余弦波形（双频点）

时间 占空比	1V P2S (mA)	1V ENCODER (mA)	1V 数字内核电流 (mA)	1. 8V 模拟电流 (mA)
1/9	140. 9	64	82. 9	53
1/8	141	64. 1	83. 2	53
1/7	140. 9	64. 2	83. 7	53
1/6	141	64. 3	84. 3	53
1/5	141	64. 5	85. 1	53
1/4	140. 9	64. 8	86. 2	53
1/3	141. 1	65. 1	88	53
1/2	141. 2	67. 1	96. 6	53
100%	141. 9	71. 1	113	53

拖尾矫正功耗

1V P2S (mA)	1V ENCODER (mA)	1V 数字内核电流 (mA)	1. 8V 模拟电流 (mA)
138. 2	64. 3	228. 7	53

注意：拖尾矫正功耗较高，数字内核电流显著增加至228.7mA

数字功能测试

复位

硬件复位功能

同XY

系统软件复位功能

同XY

通道软件复位功能

同XY

配置

时钟寄存器配置功能

同XY

寄存器配置功能

同XY

存储器配置功能

同XY

同步

同步启动

同XY

同步输出

同XY

同步调节

同XY

同步采样

同XY

MCU测试项

MCU基本指令

同XY

MCU通用寄存器

同XY

MCU数据存储区

同XY

MCU异常测试

同XY

MCU综合测试

同XY

乘法器

16x16乘法器

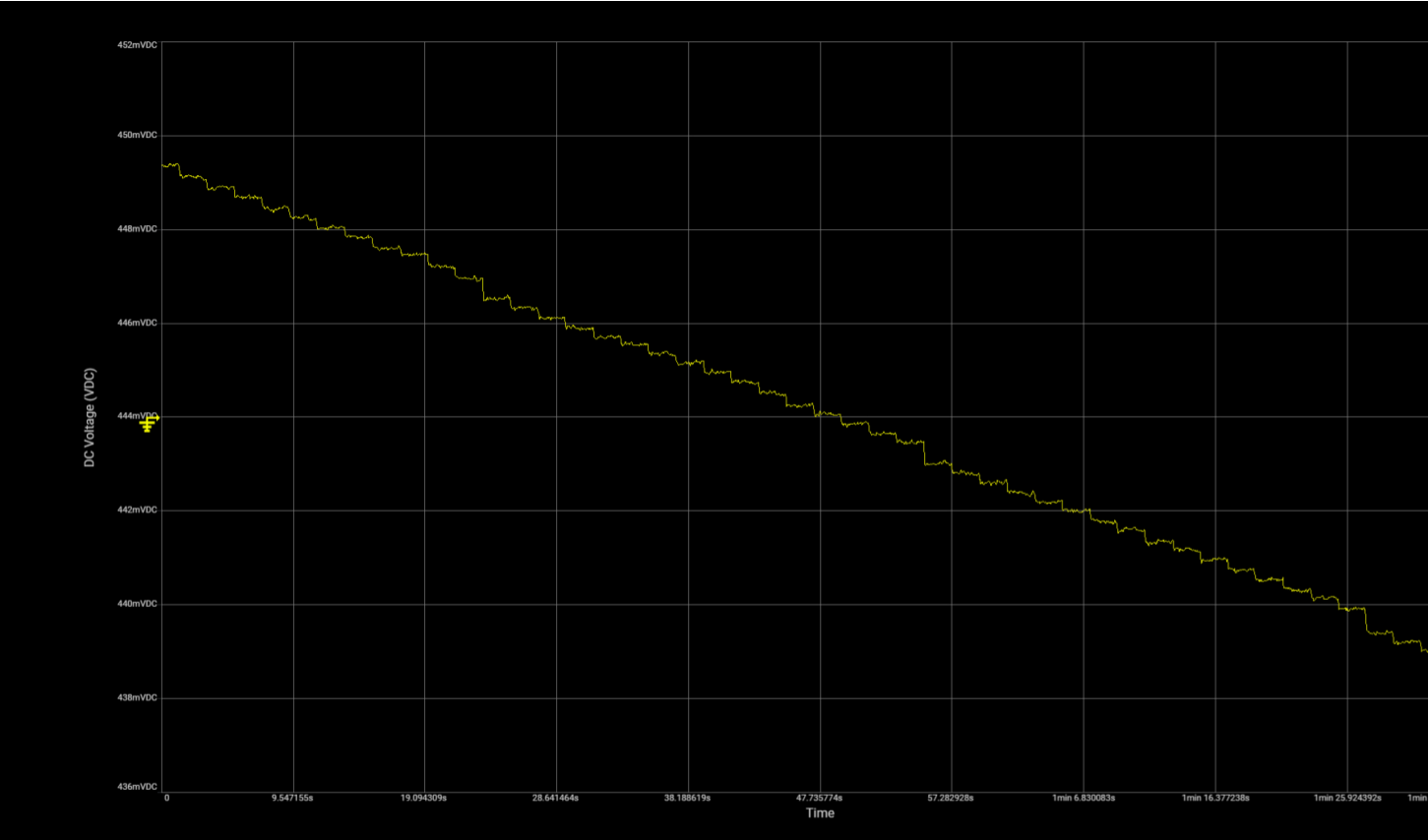
同XY

12x20乘法器

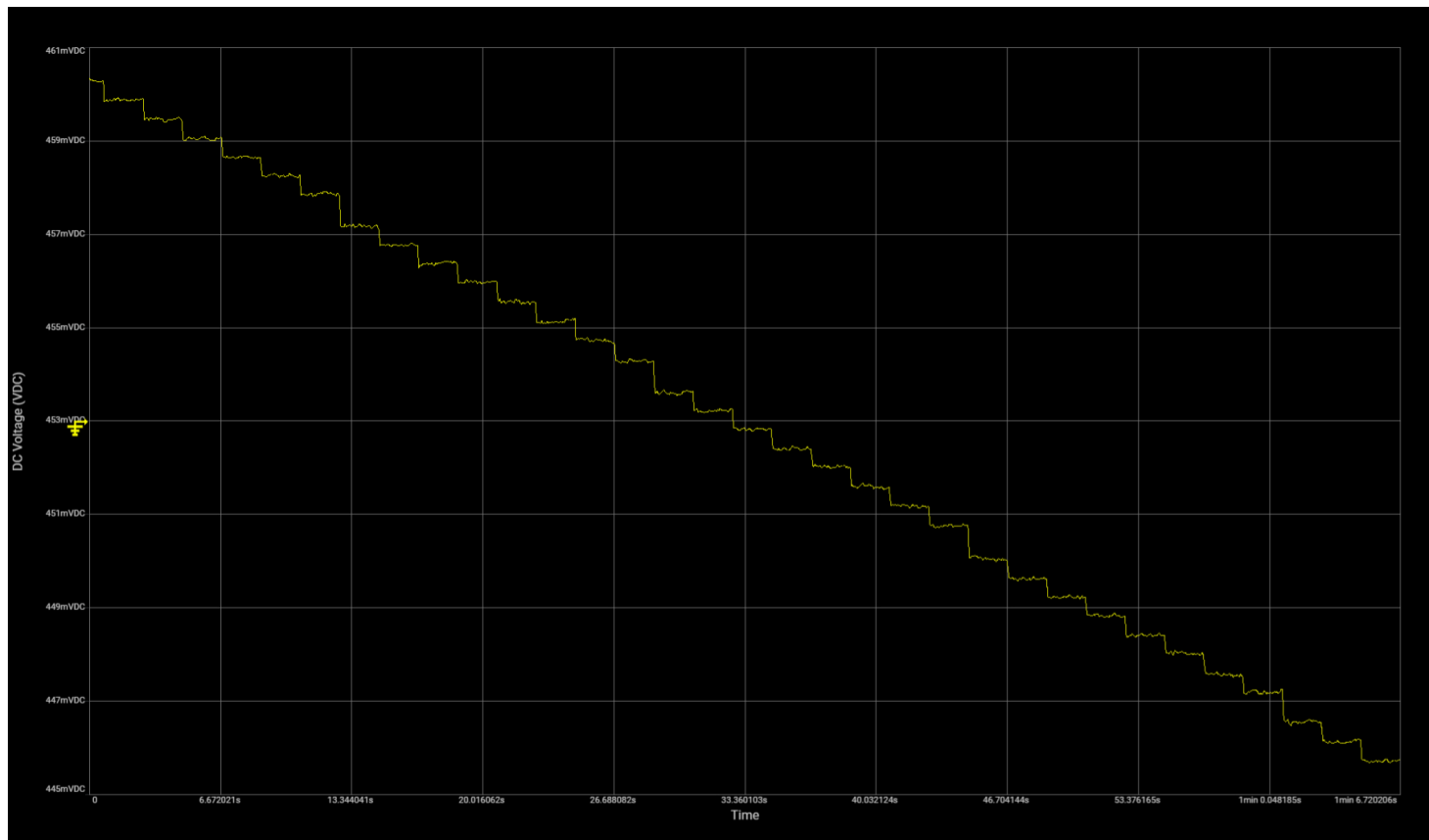
同XY

RAMP

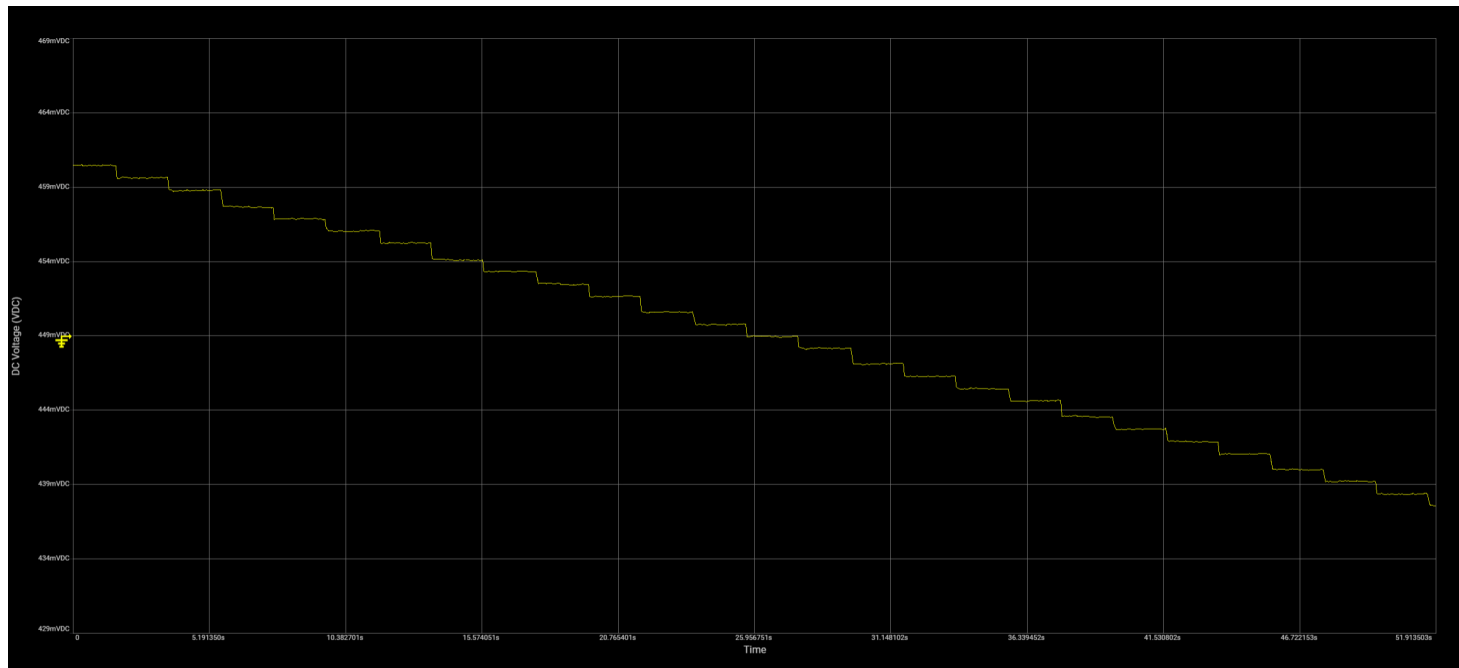
台阶高度16，台阶宽度2s



台阶高度32，台阶宽度2s



台阶高度64，台阶宽度2s



AWG

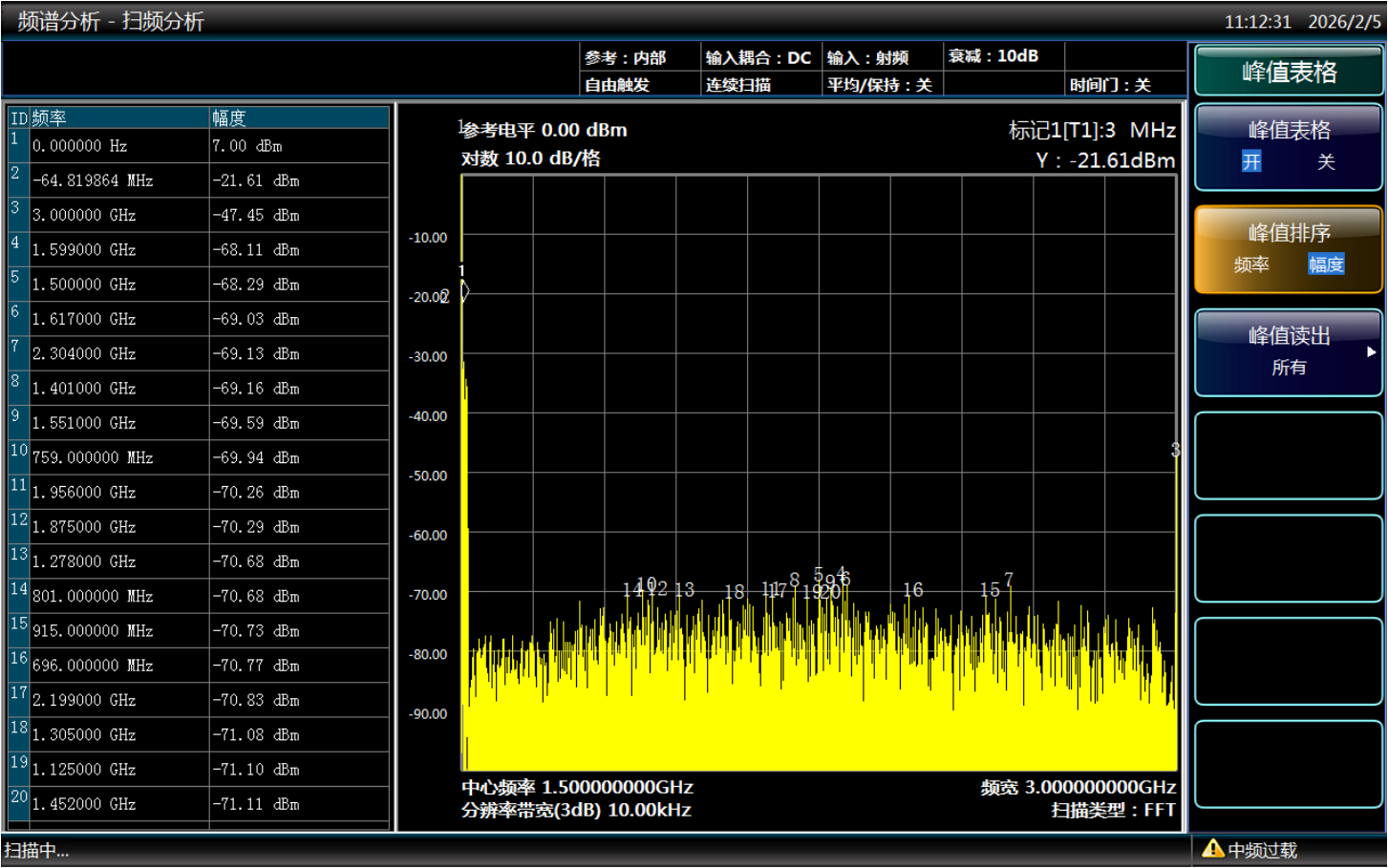
单音NCO

扫频

扫频测试覆盖了从1MHz到1500MHz的频率范围，测试间隔为50MHz或100MHz。

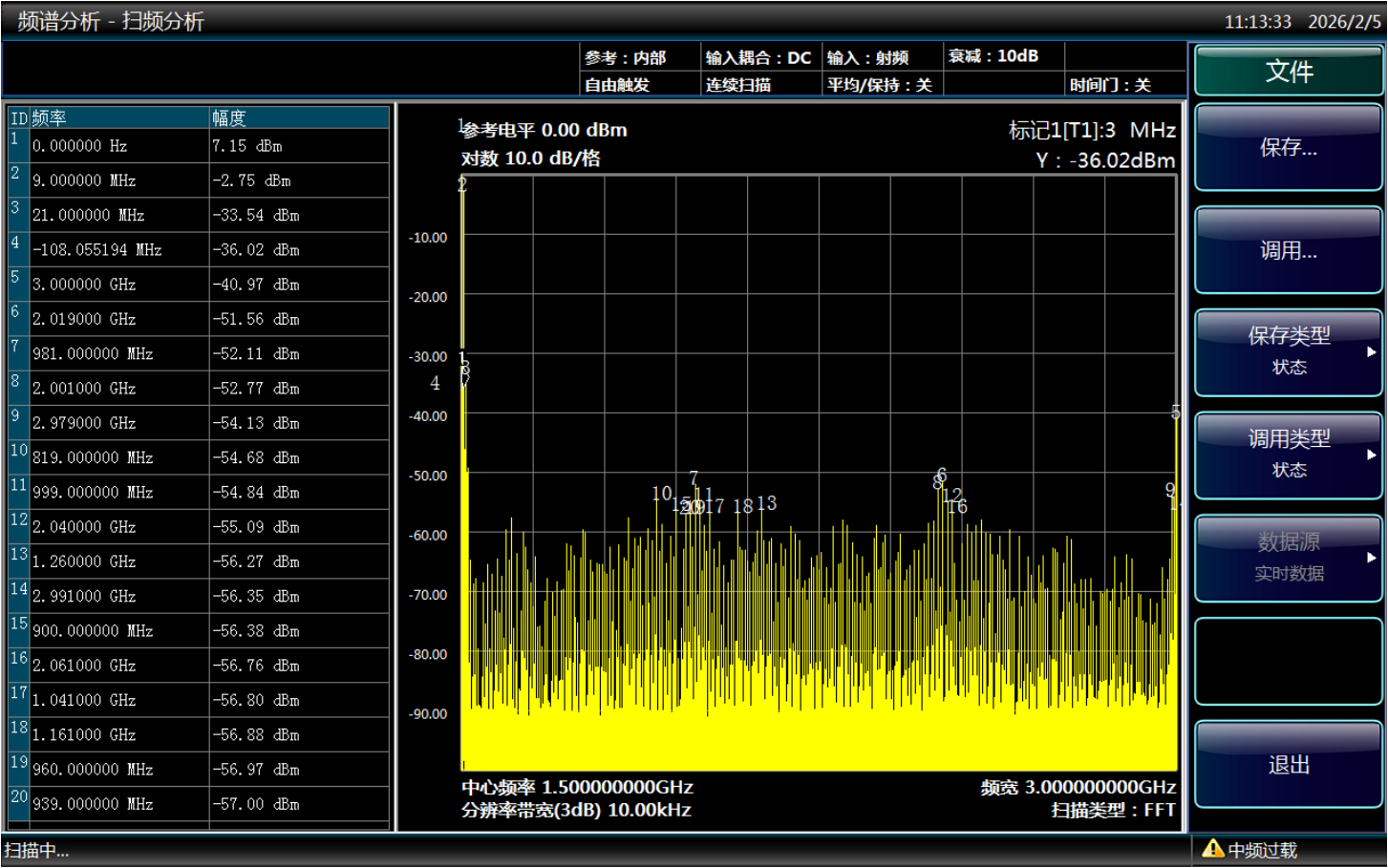
1MHz扫频测试





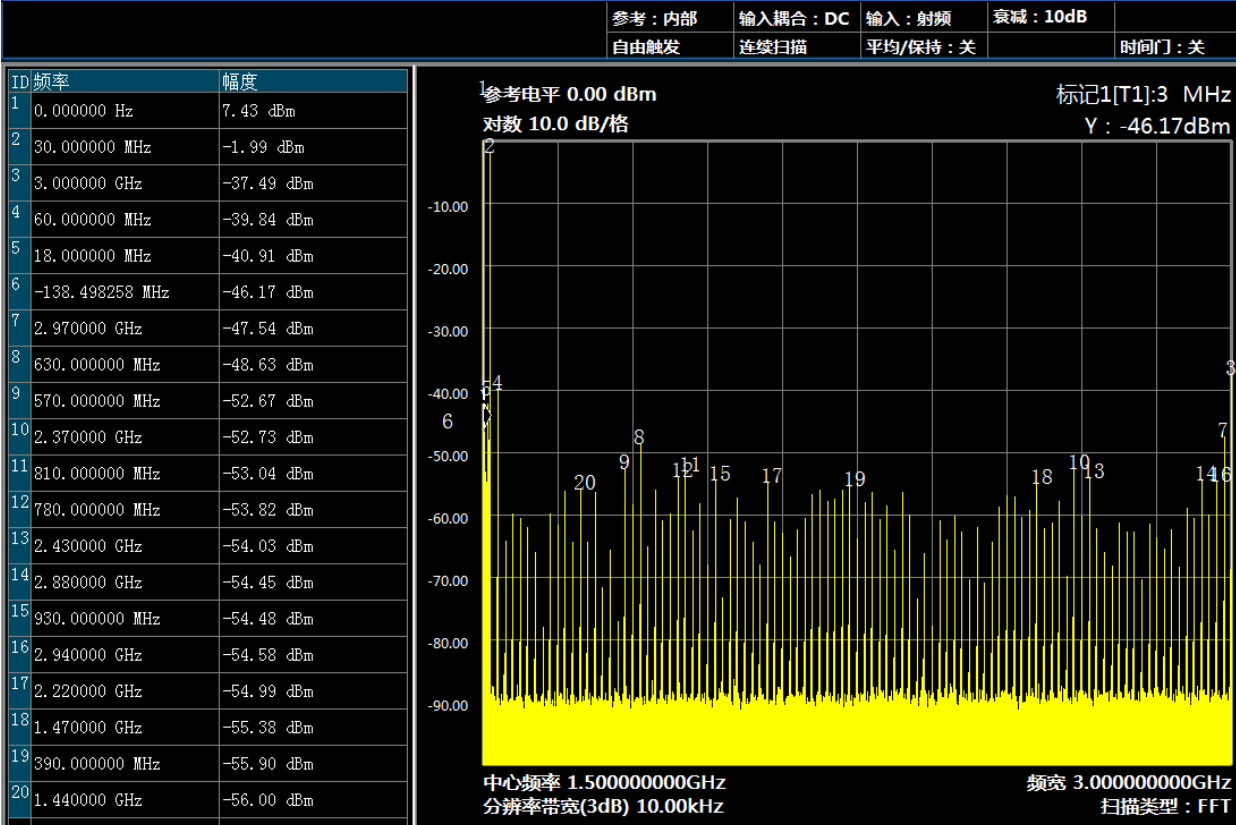
10MHz扫频测试





30MHz扫频测试





文件

保存...

调用...

保存类型
状态

调用类型
状态

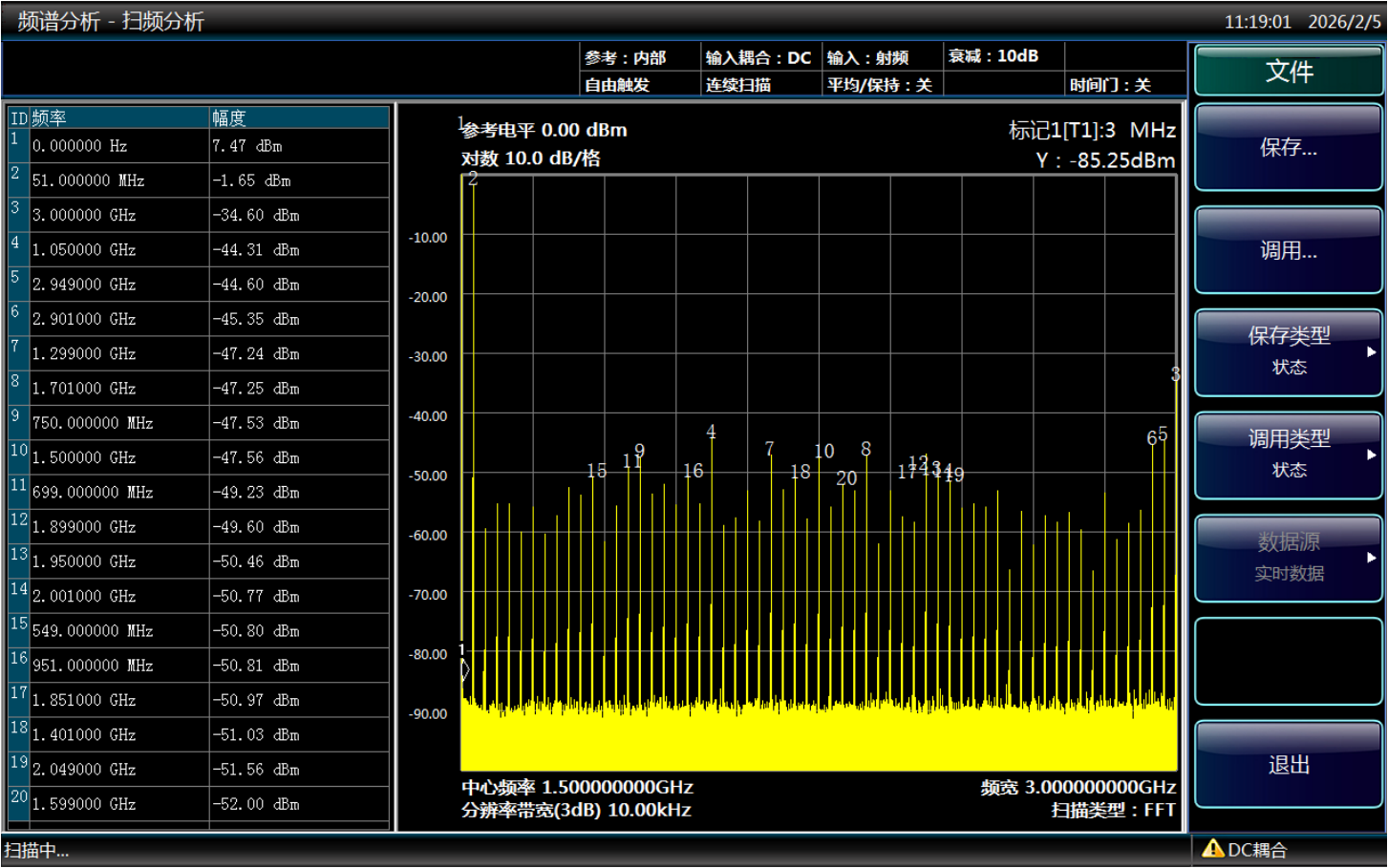
数据源
实时数据

退出

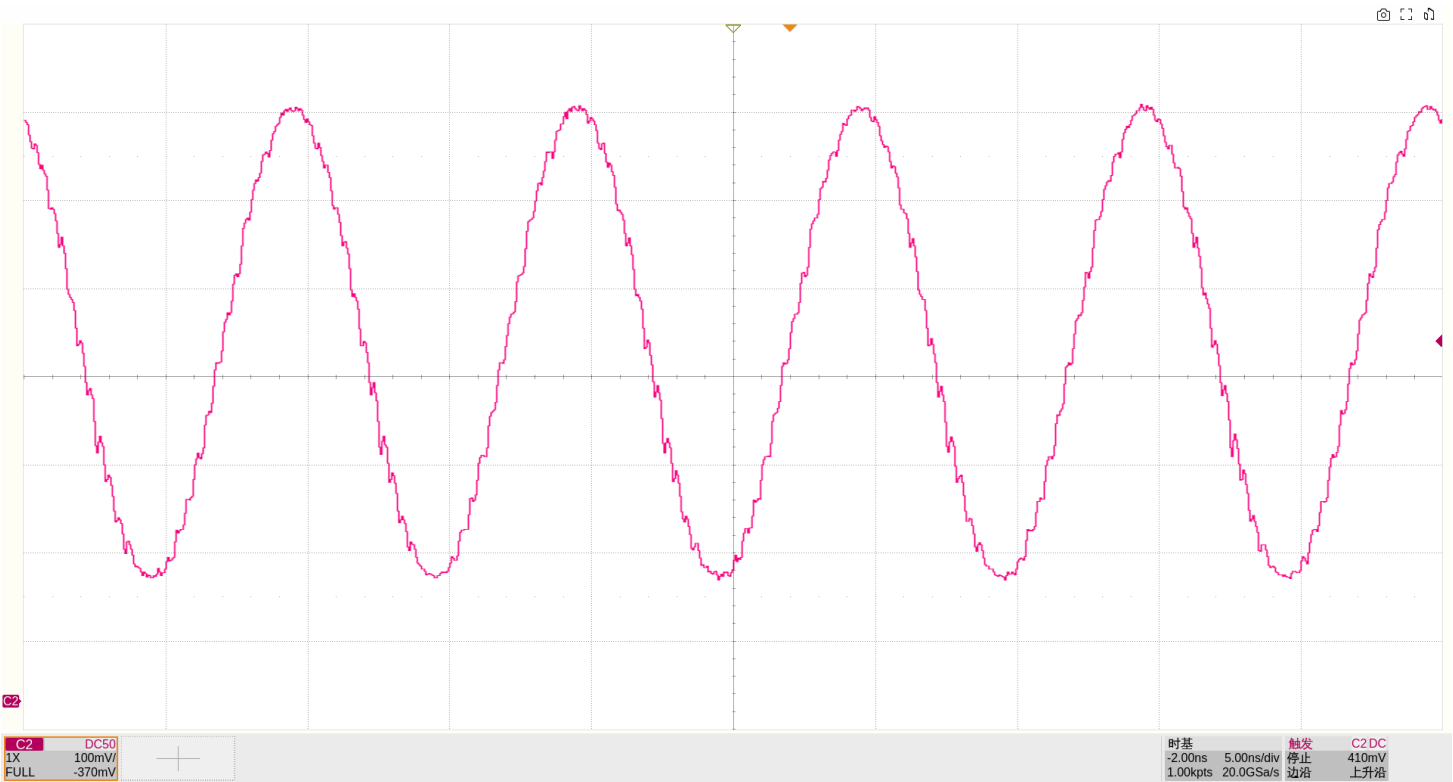
扫描中... 中频过载

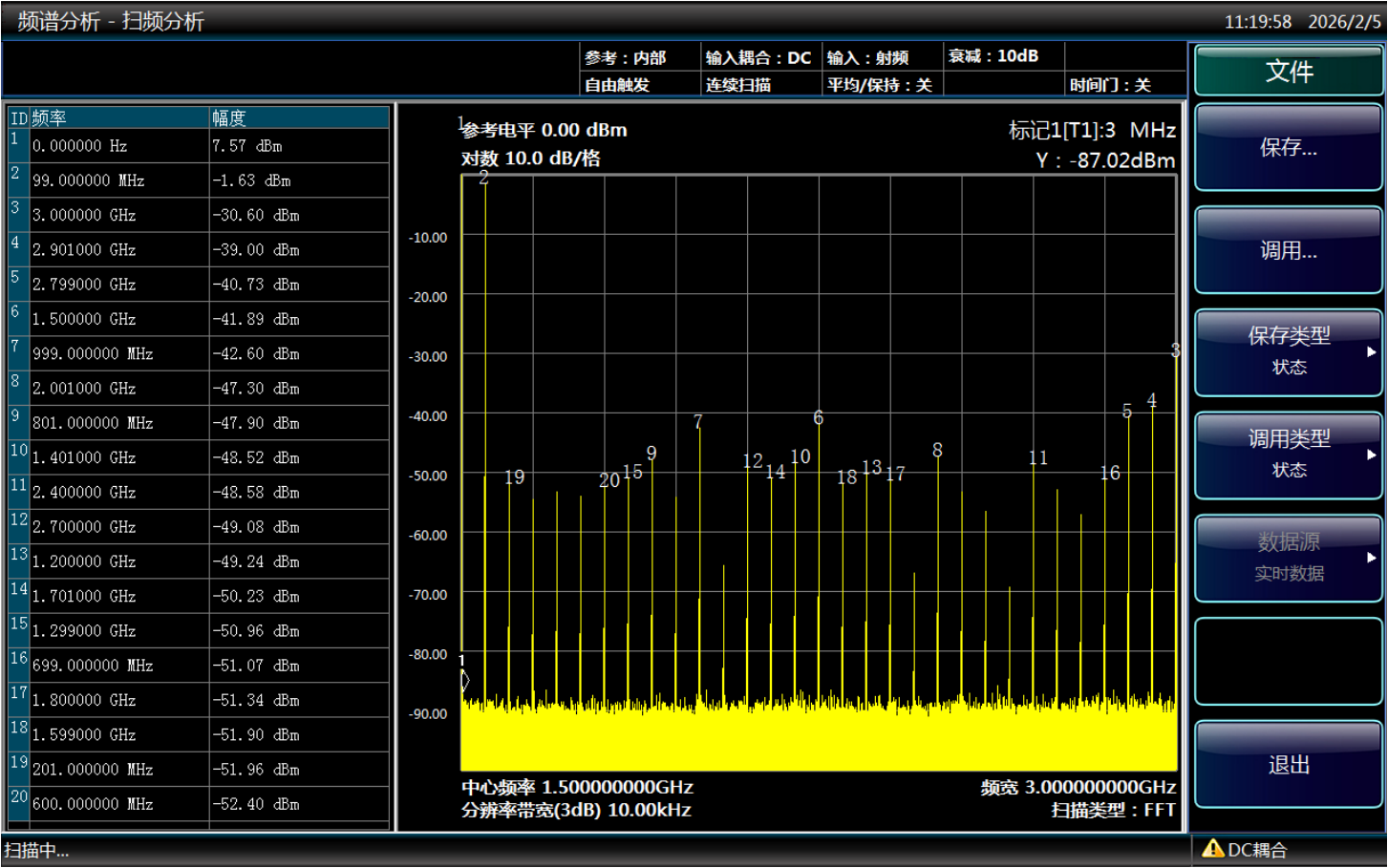
50MHz扫频测试



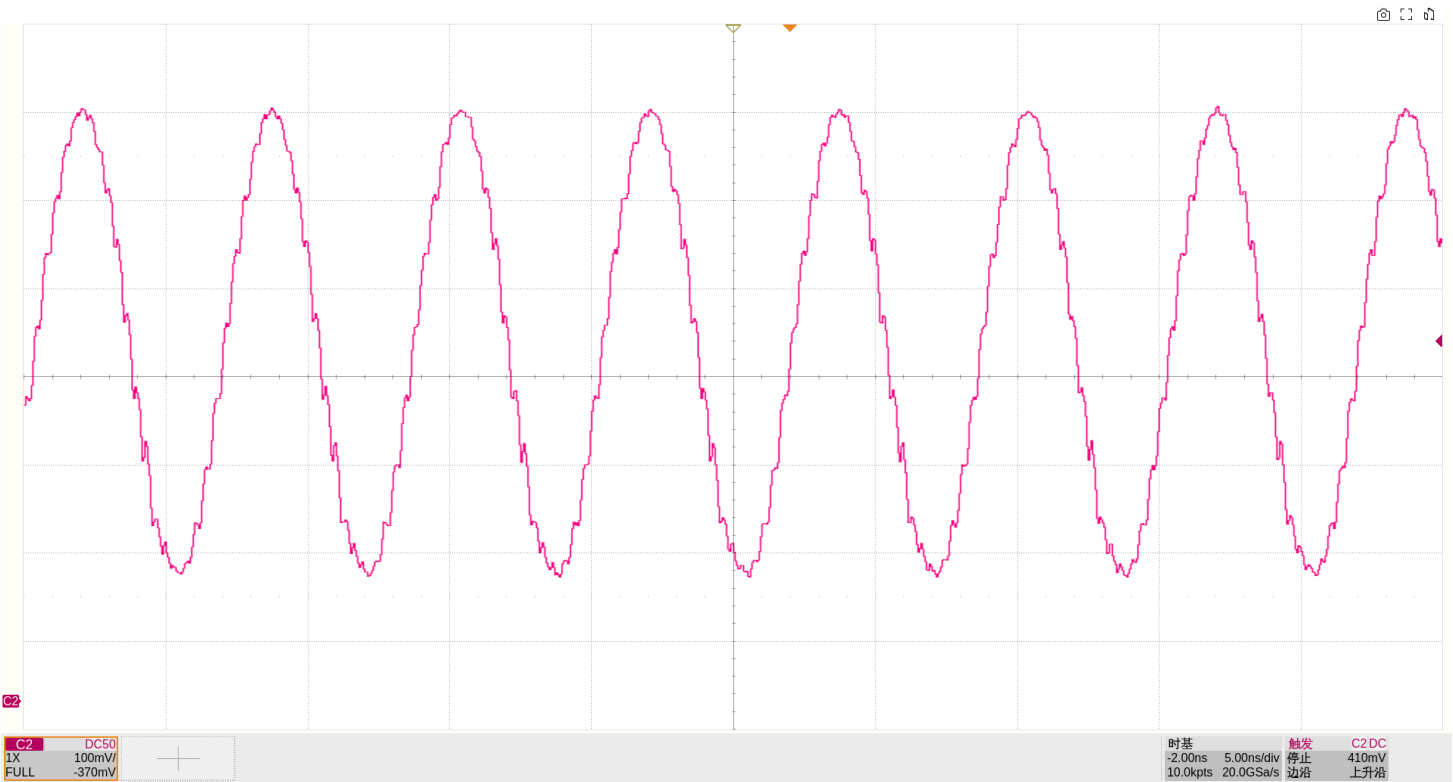


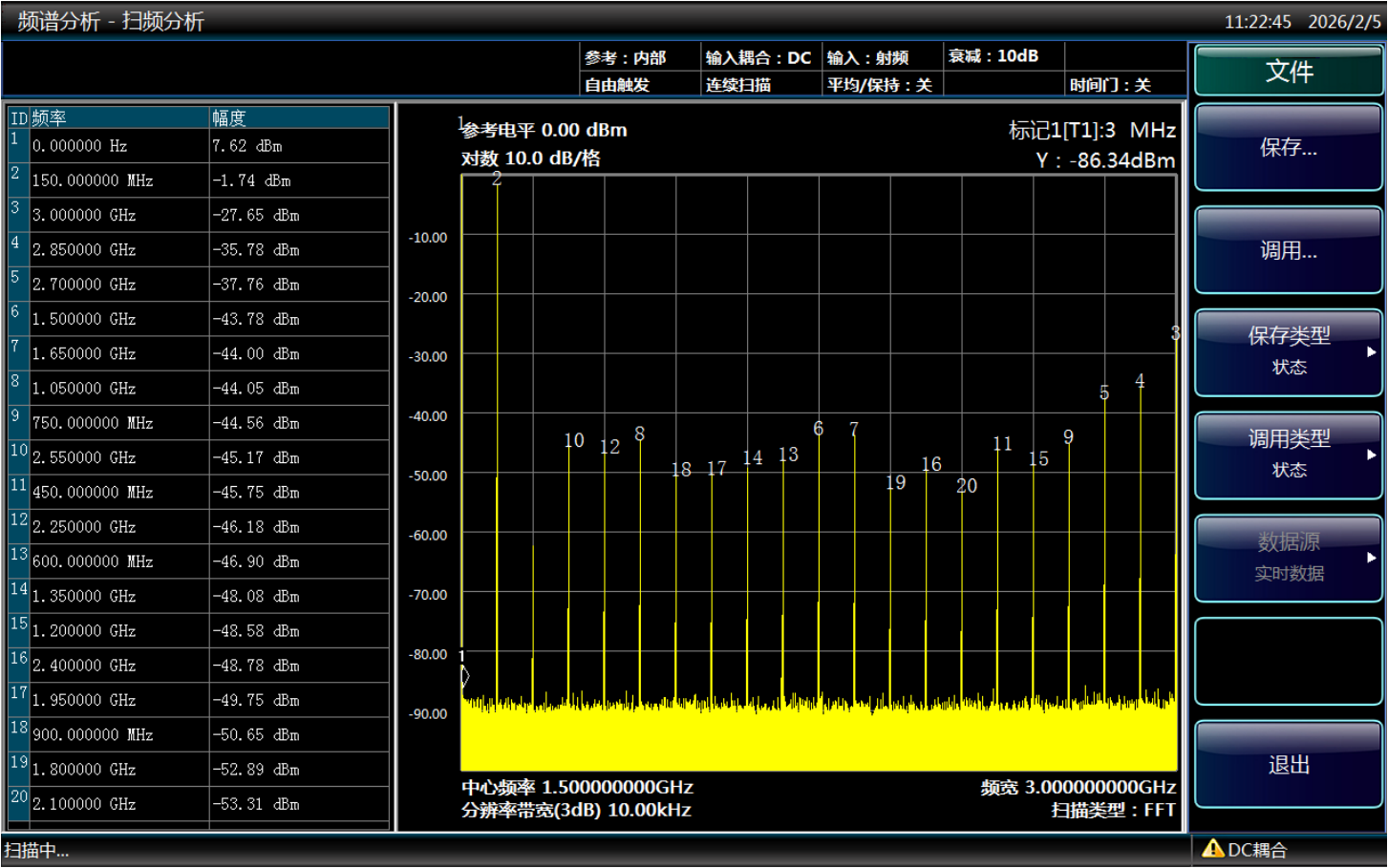
100MHz扫频测试



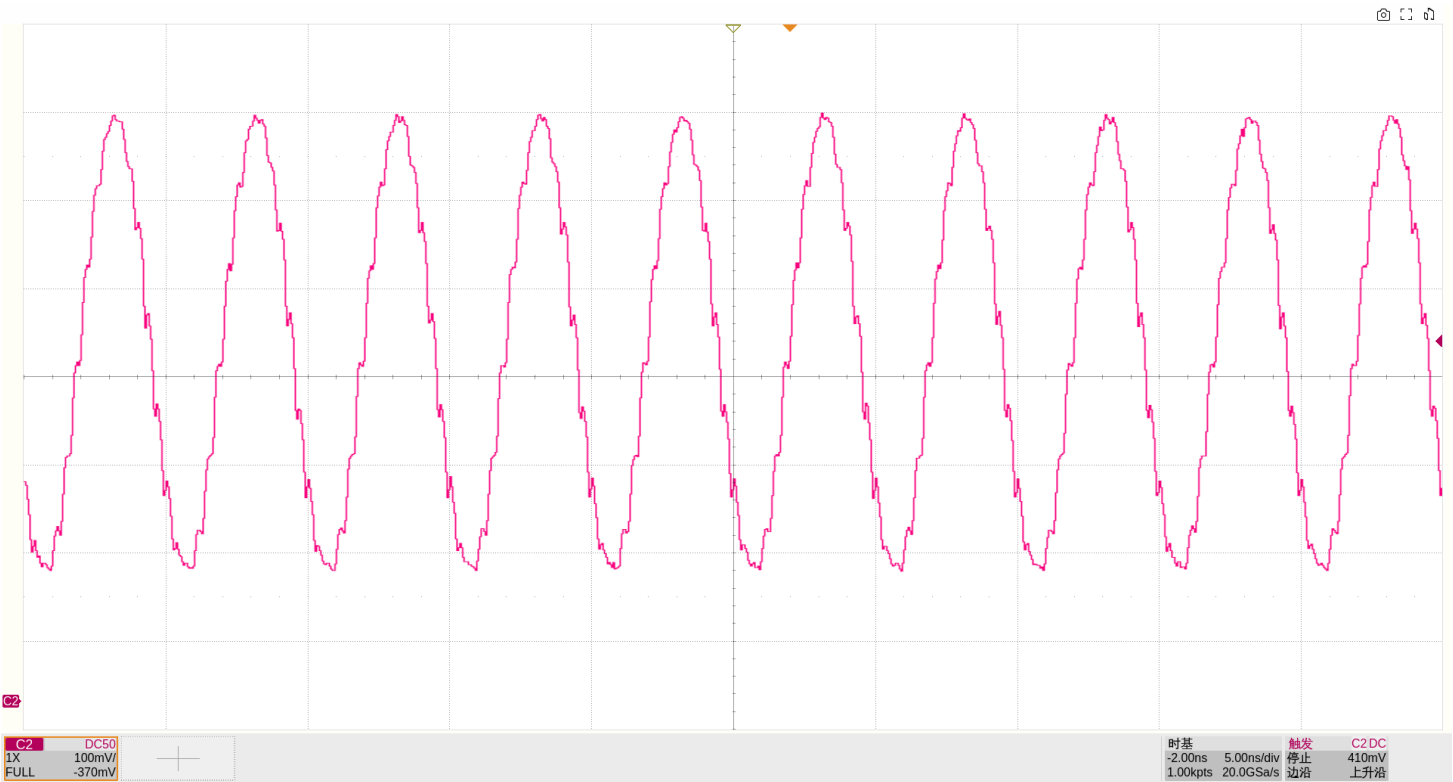


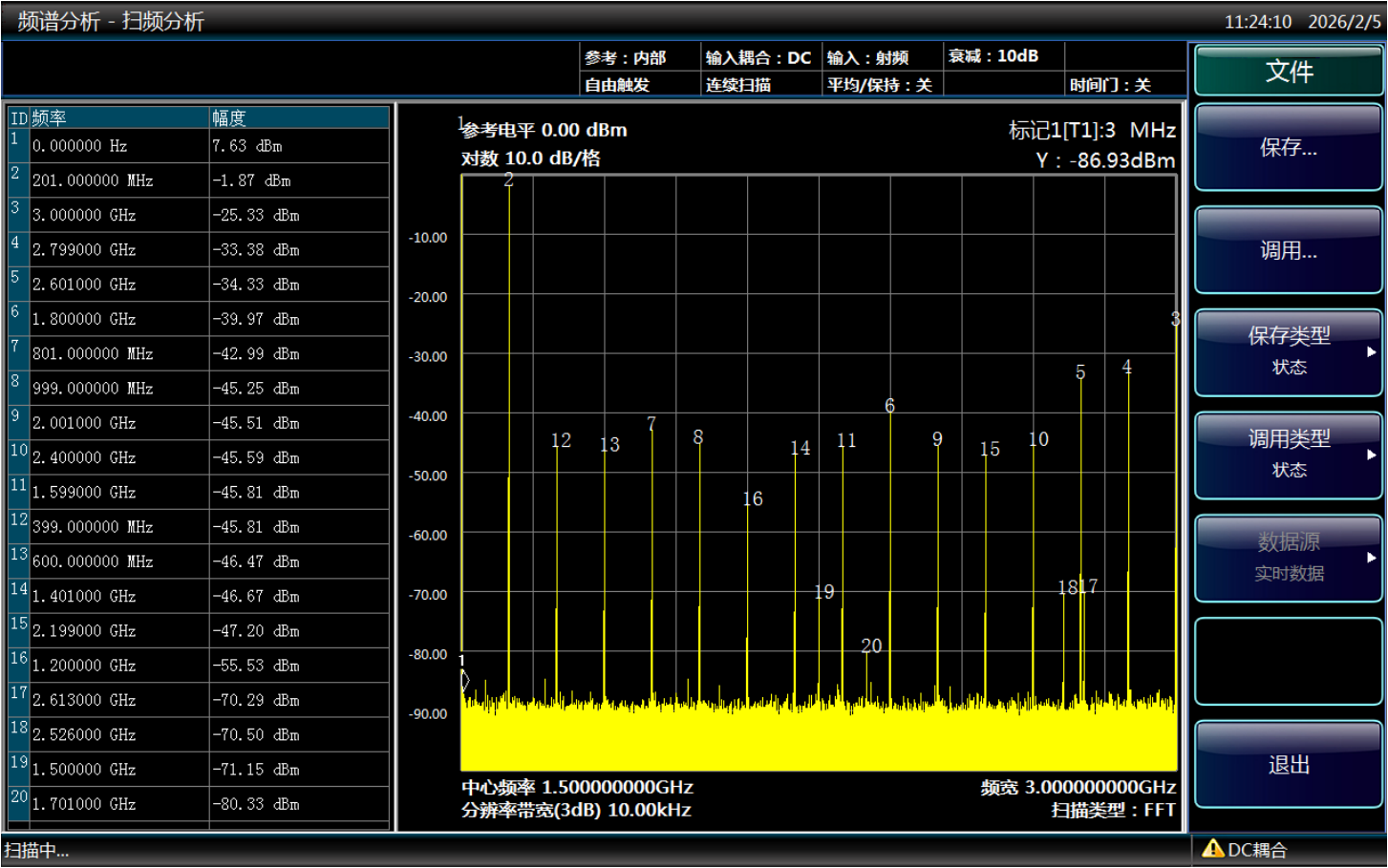
150MHz扫频测试



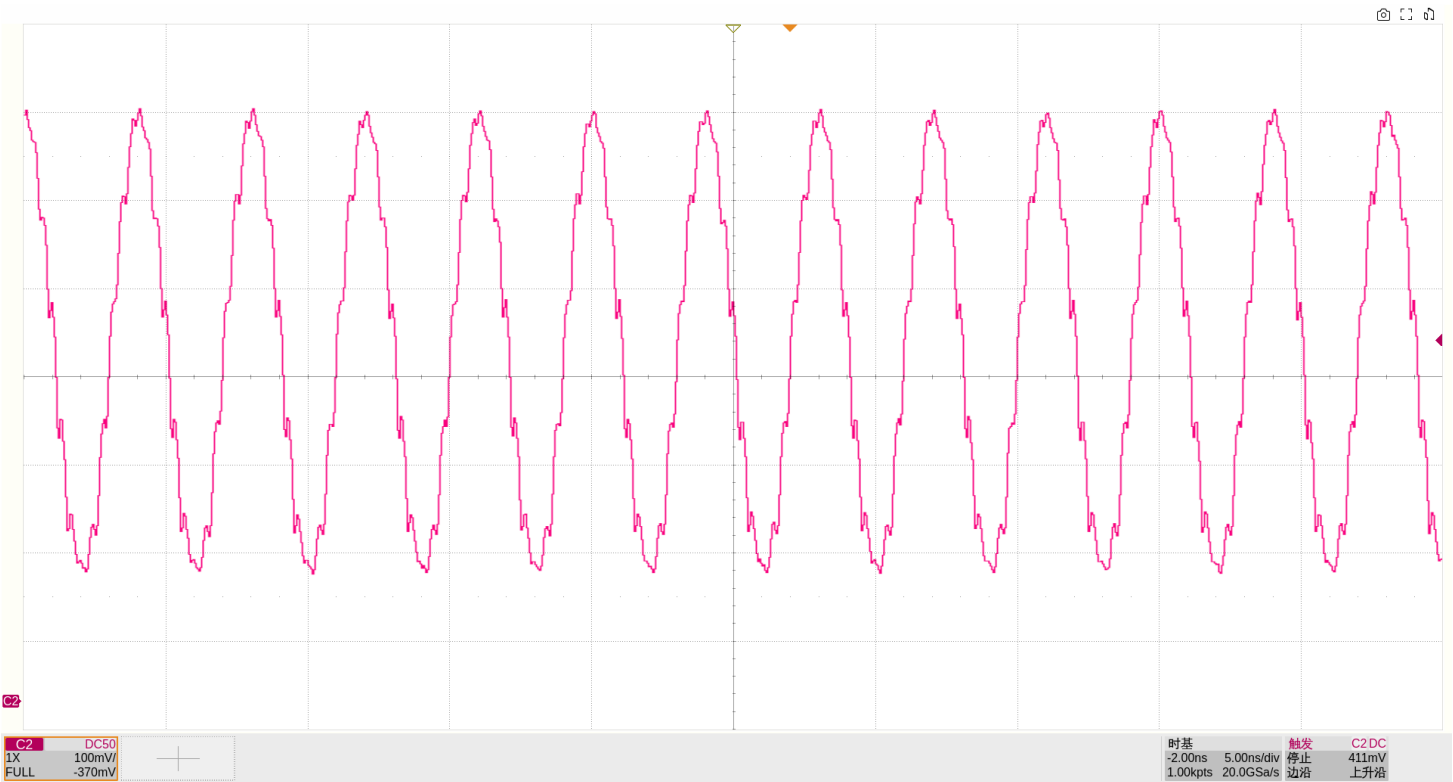


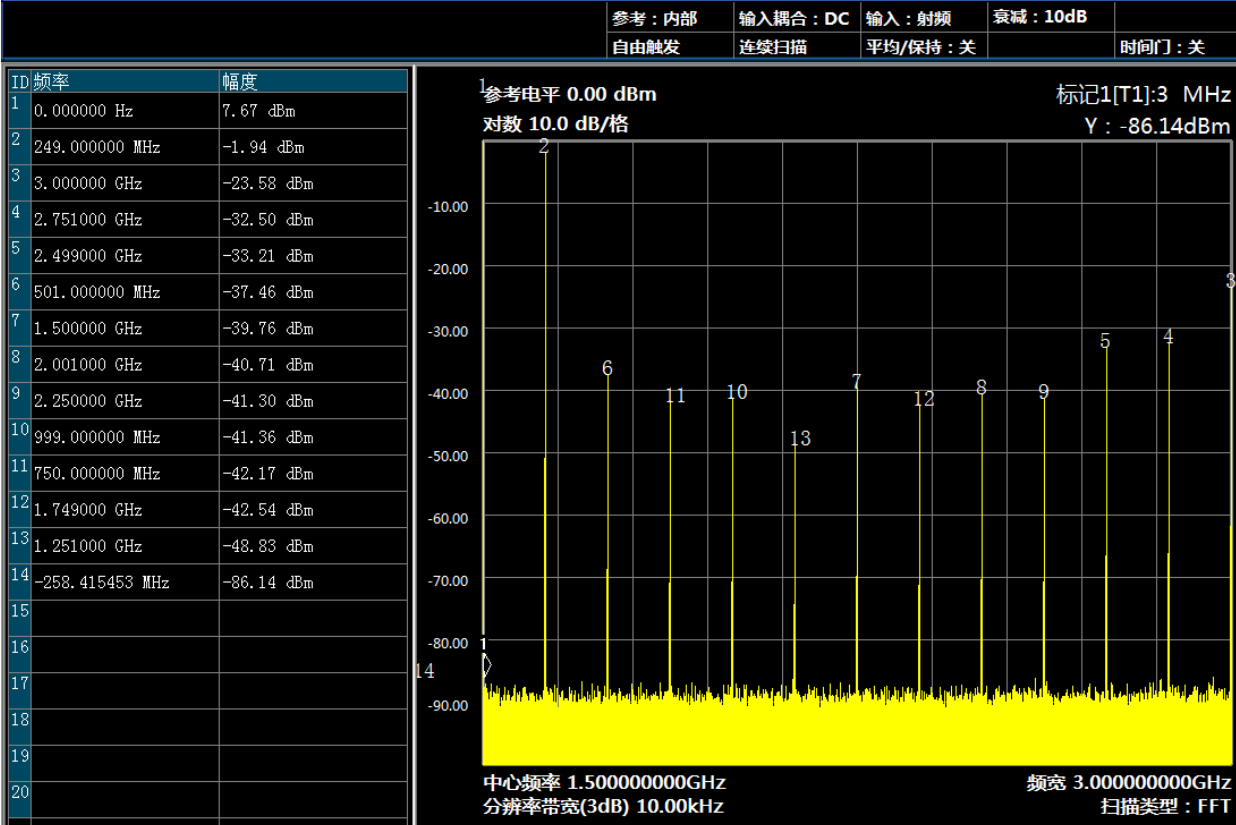
200MHz扫频测试





250MHz扫频测试





文件

保存...

调用...

保存类型

状态

调用类型

状态

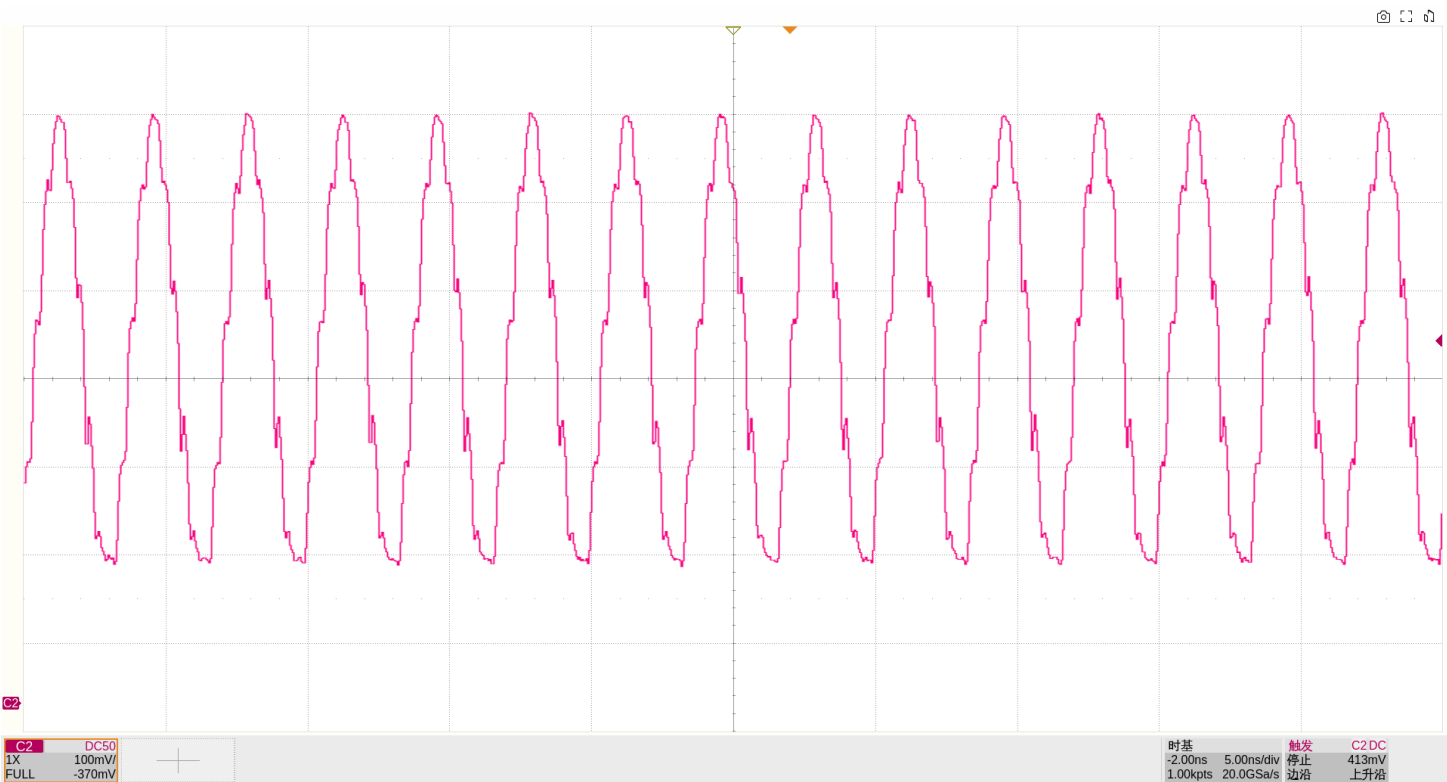
数据源

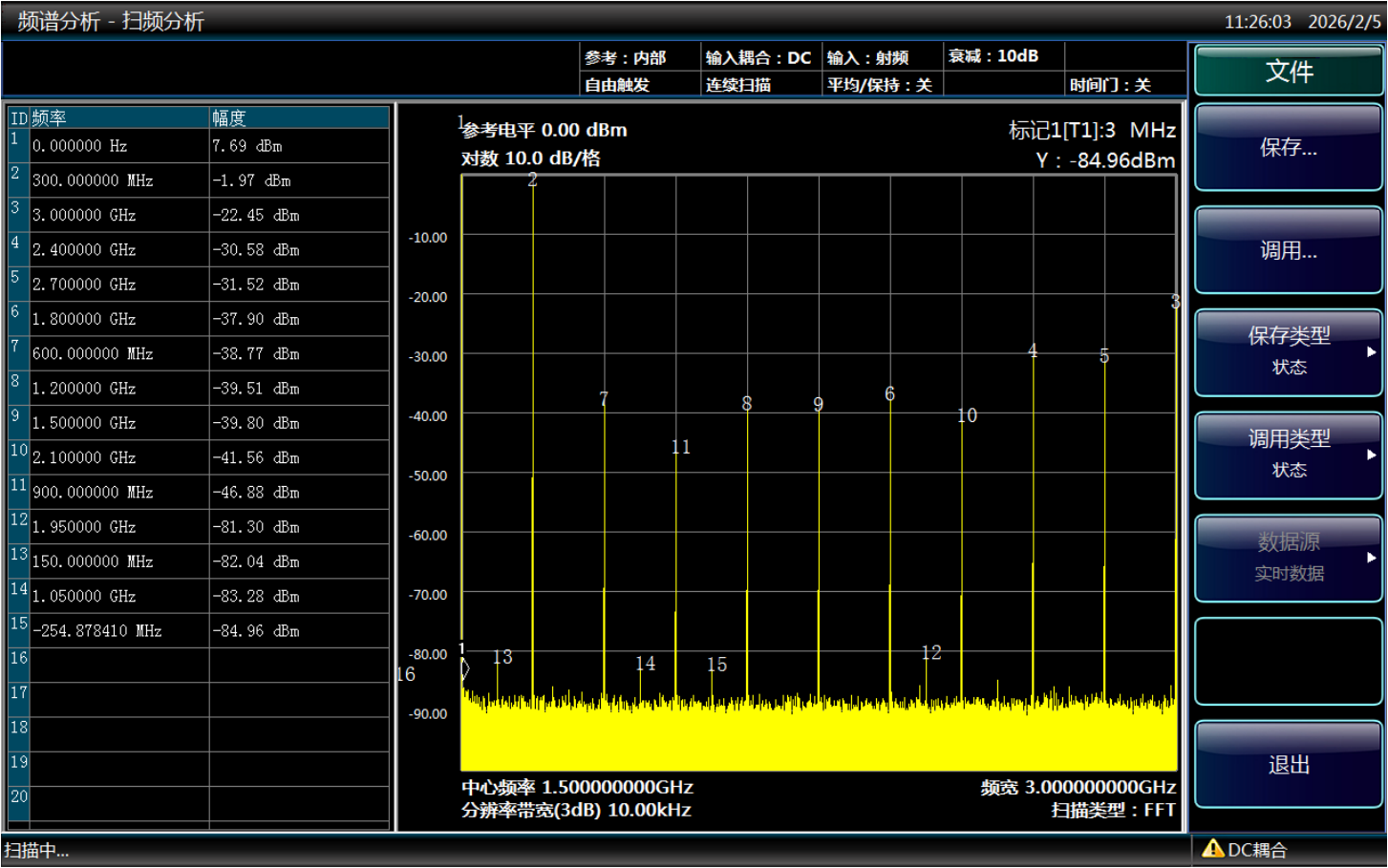
实时数据

退出

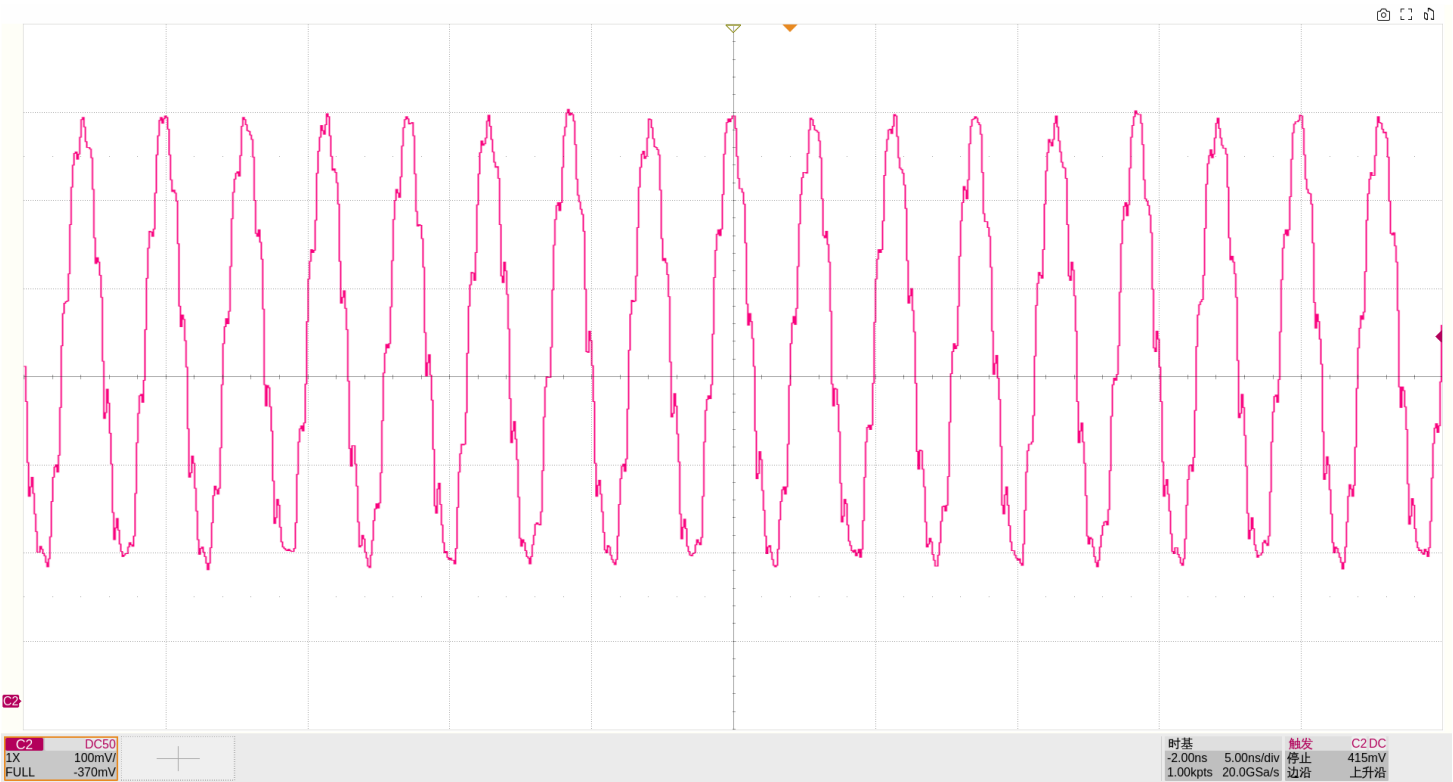
DC耦合

300MHz扫频测试





350MHz扫频测试



参考：内部 输入耦合：DC 输入：射频 衰减：10dB
自由触发 连续扫描 平均/保持：关 时间门：关

文件

保存...

调用...

保存类型

状态

调用类型

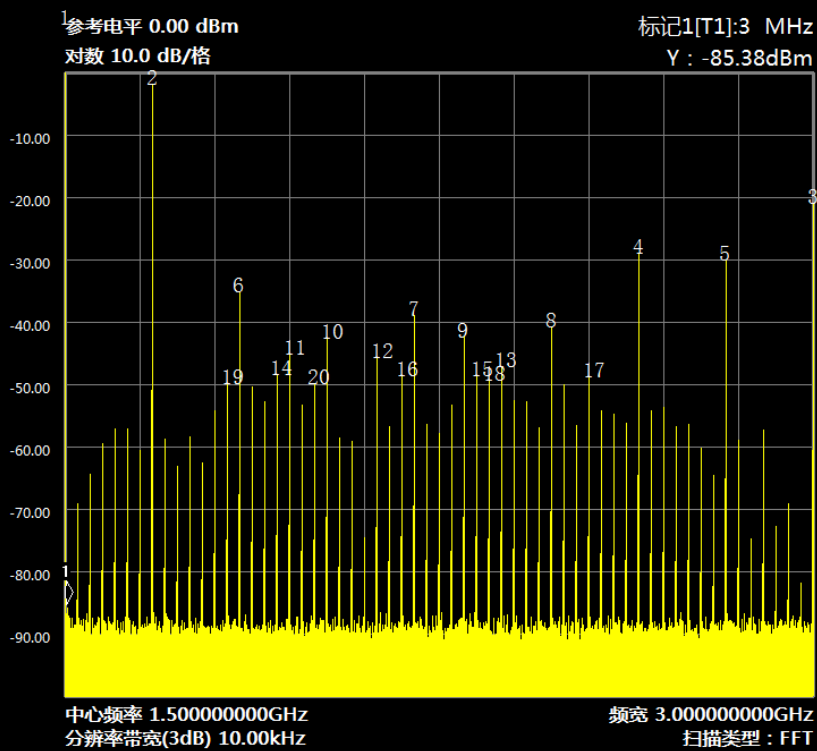
状态

数据源

实时数据

退出

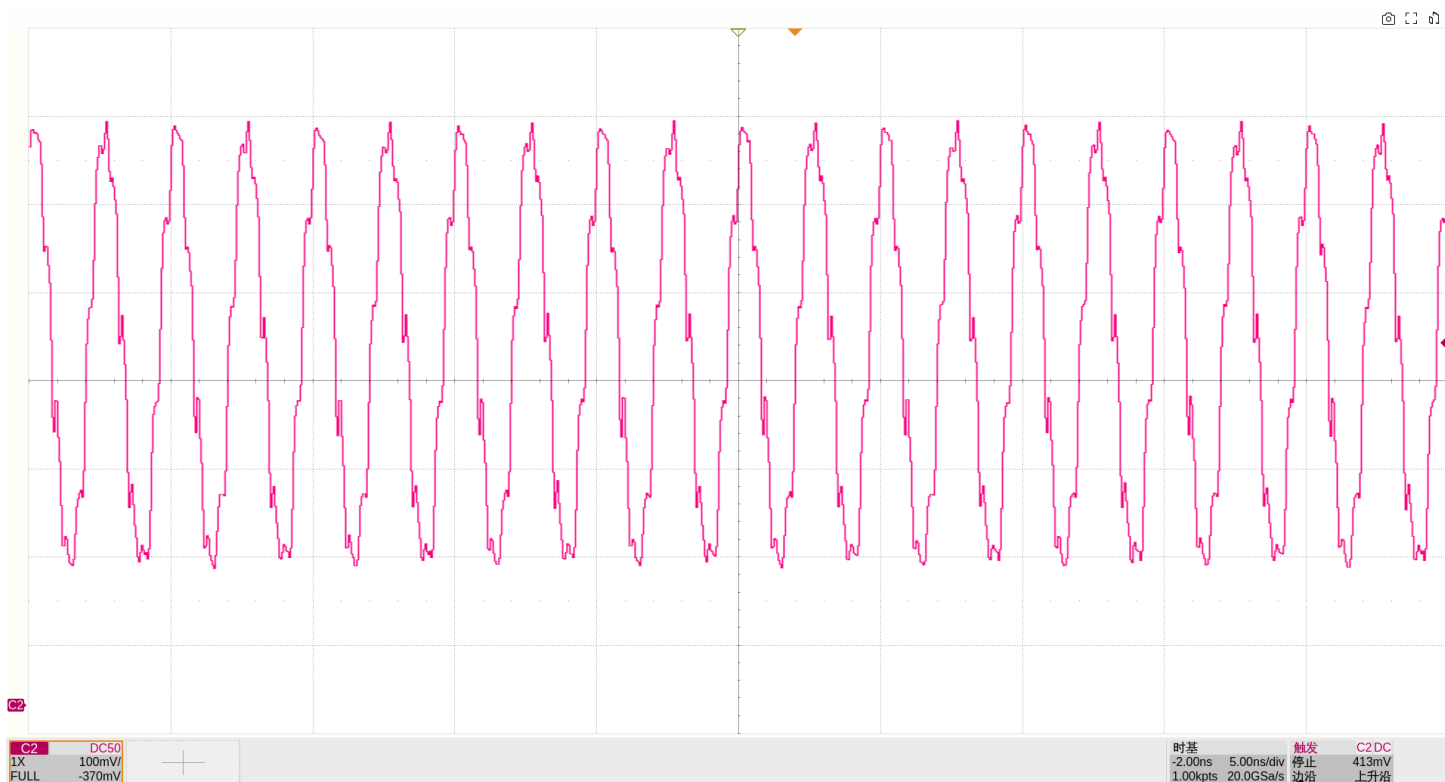
ID	频率	幅度
1	0.000000 Hz	7.68 dBm
2	351.000000 MHz	-1.94 dBm
3	3.000000 GHz	-21.13 dBm
4	2.301000 GHz	-29.07 dBm
5	2.649000 GHz	-30.17 dBm
6	699.000000 MHz	-35.10 dBm
7	1.401000 GHz	-39.05 dBm
8	1.950000 GHz	-40.84 dBm
9	1.599000 GHz	-42.43 dBm
10	1.050000 GHz	-42.62 dBm
11	900.000000 MHz	-45.27 dBm
12	1.251000 GHz	-45.74 dBm
13	1.749000 GHz	-47.14 dBm
14	849.000000 MHz	-48.46 dBm
15	1.650000 GHz	-48.59 dBm
16	1.350000 GHz	-48.71 dBm
17	2.100000 GHz	-48.75 dBm
18	1.701000 GHz	-49.42 dBm
19	651.000000 MHz	-49.91 dBm
20	999.000000 MHz	-49.94 dBm

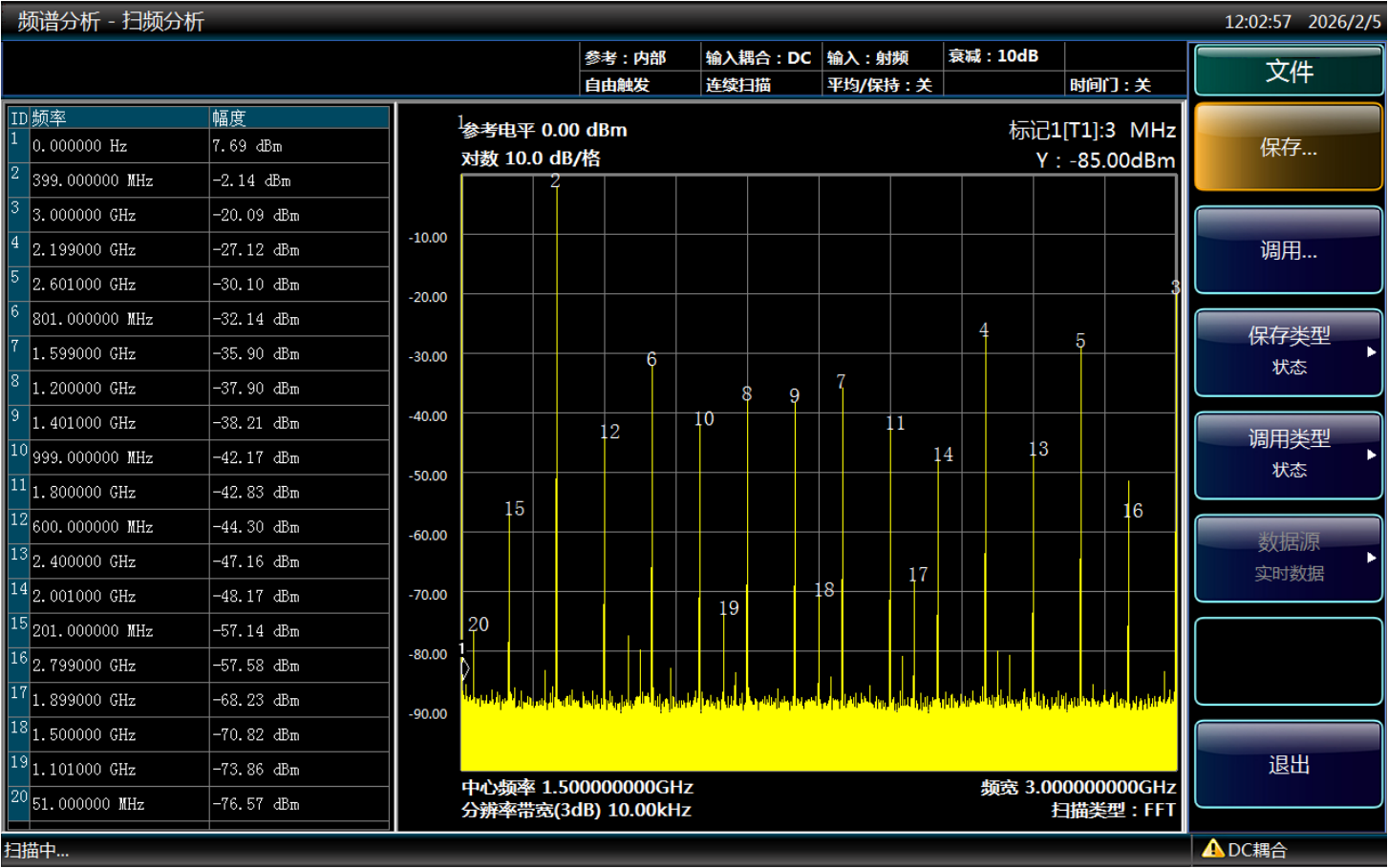


扫描中...

DC耦合

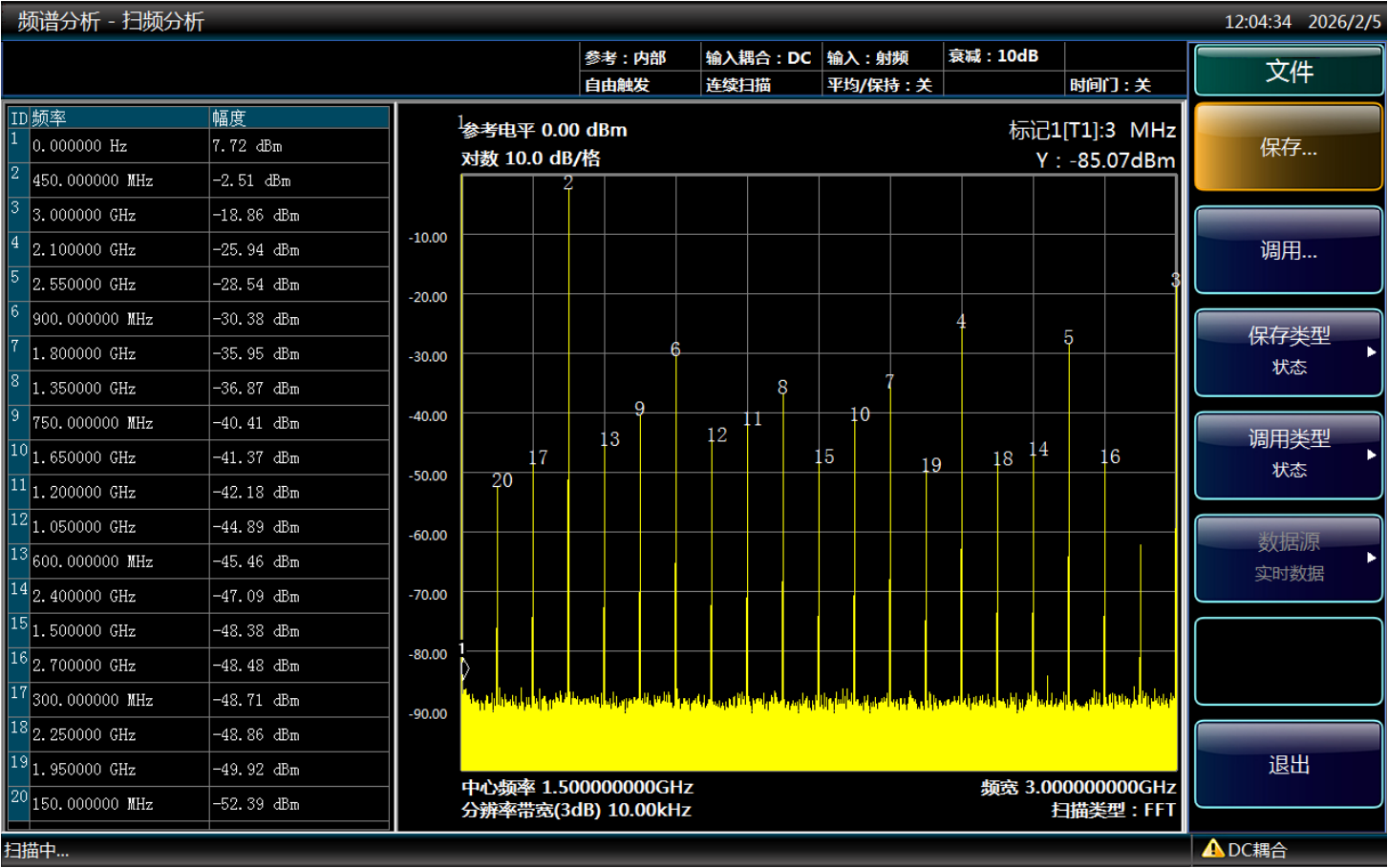
400MHz扫频测试





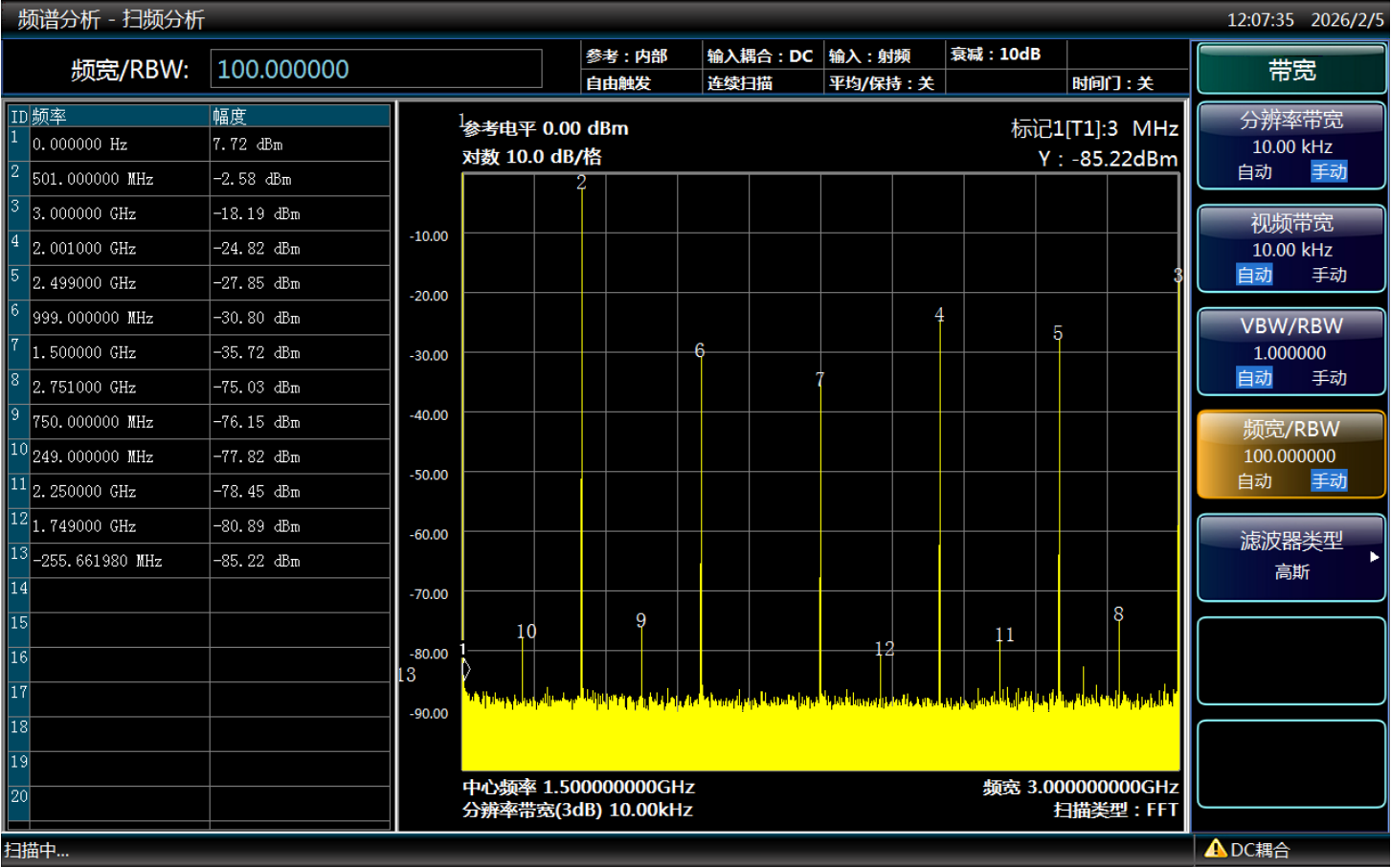
450MHz扫频测试





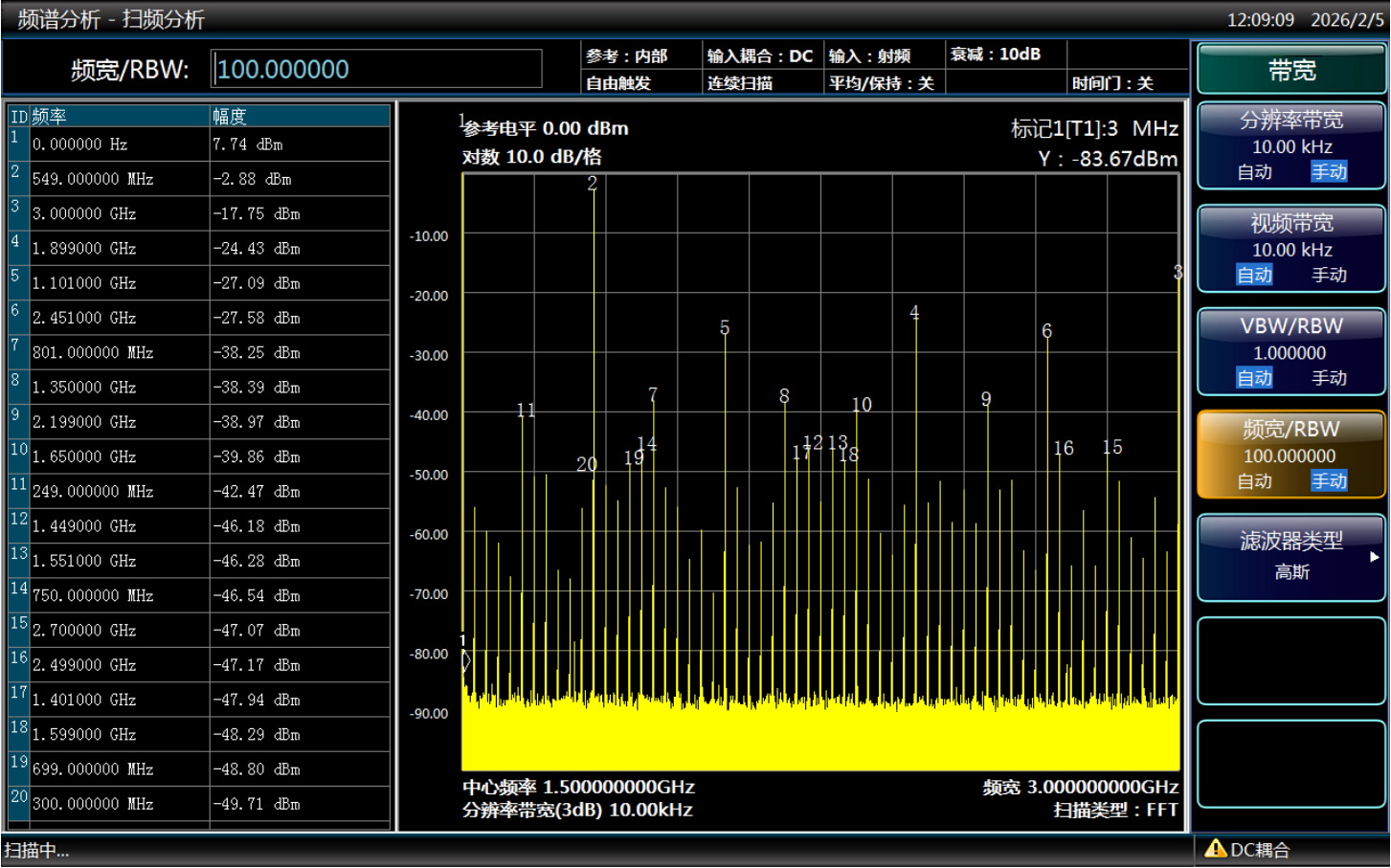
500MHz扫频测试



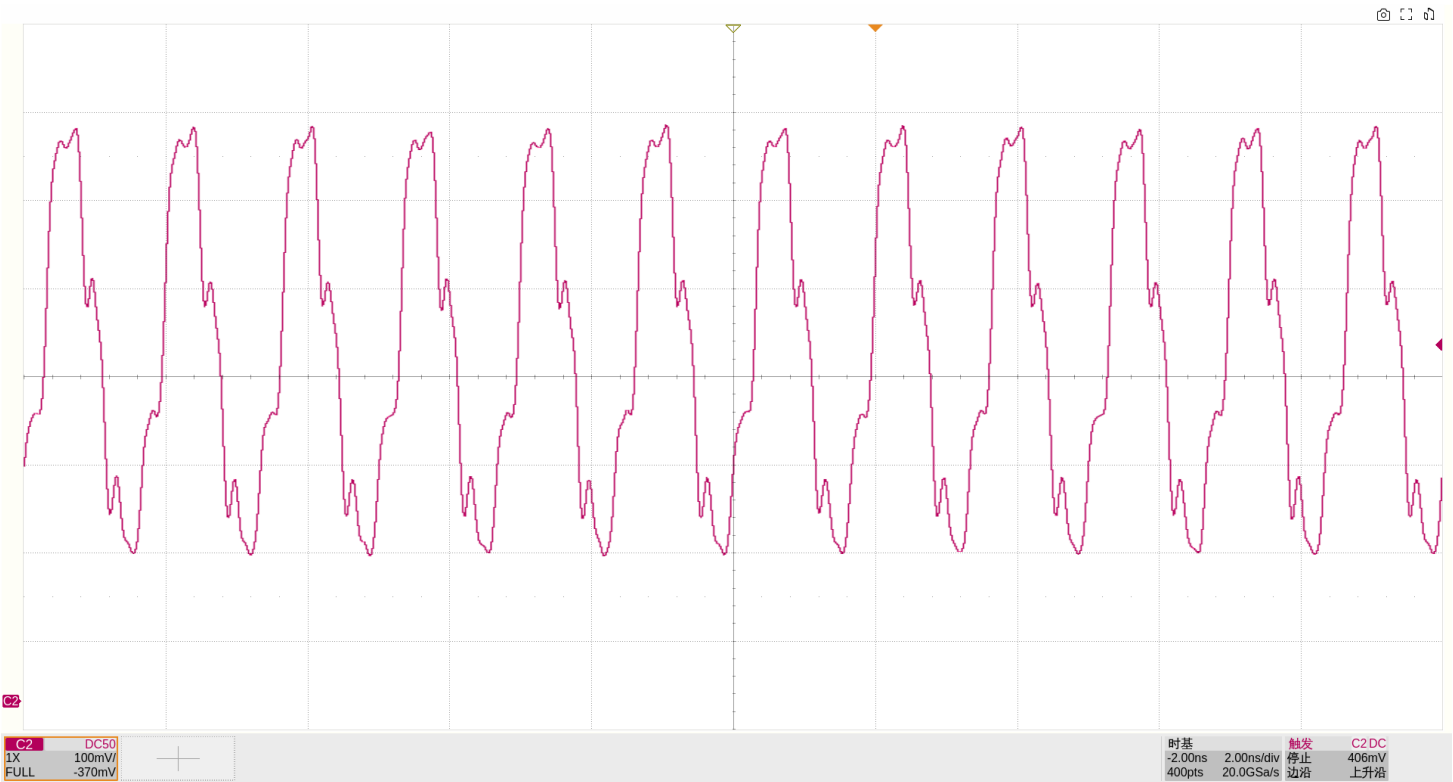


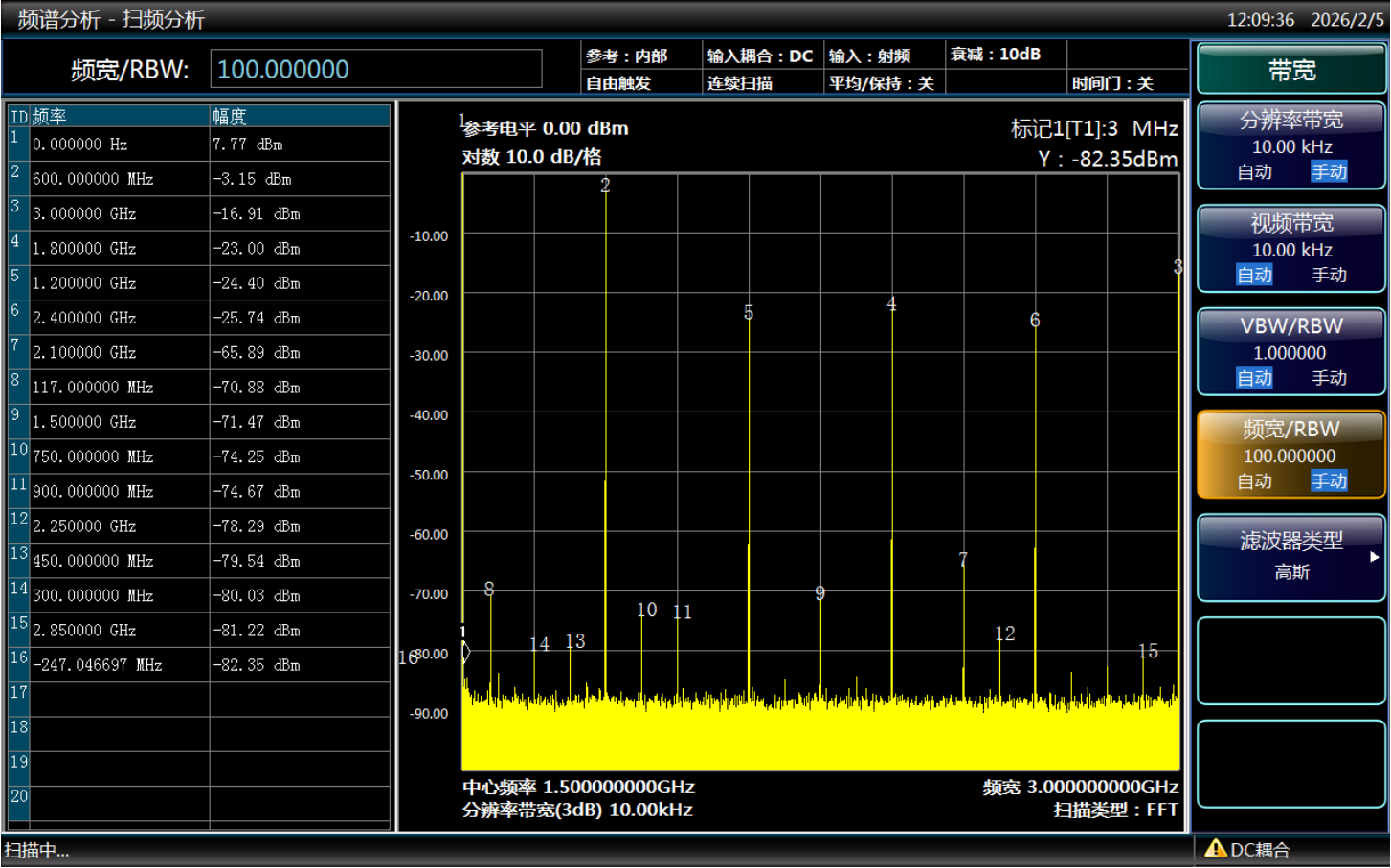
550MHz扫频测试



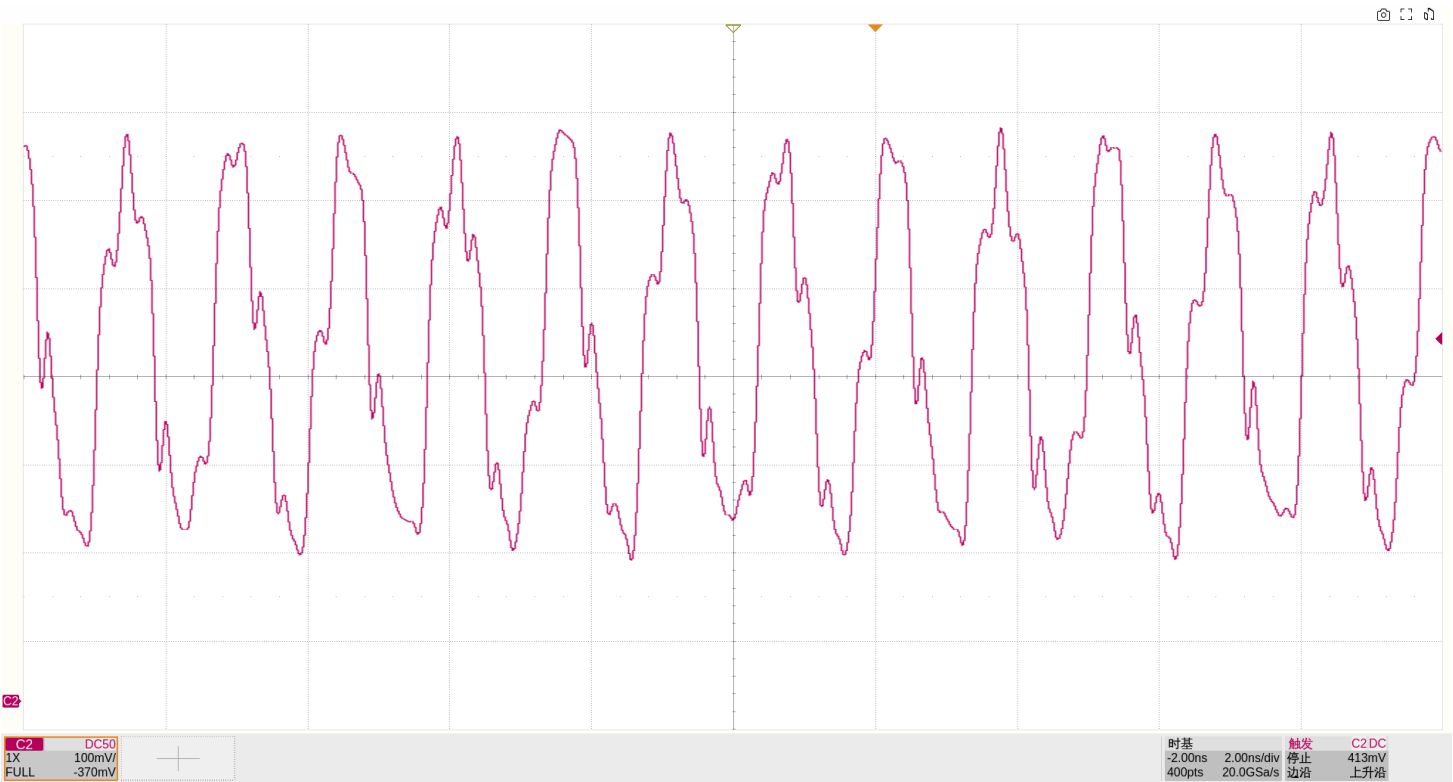


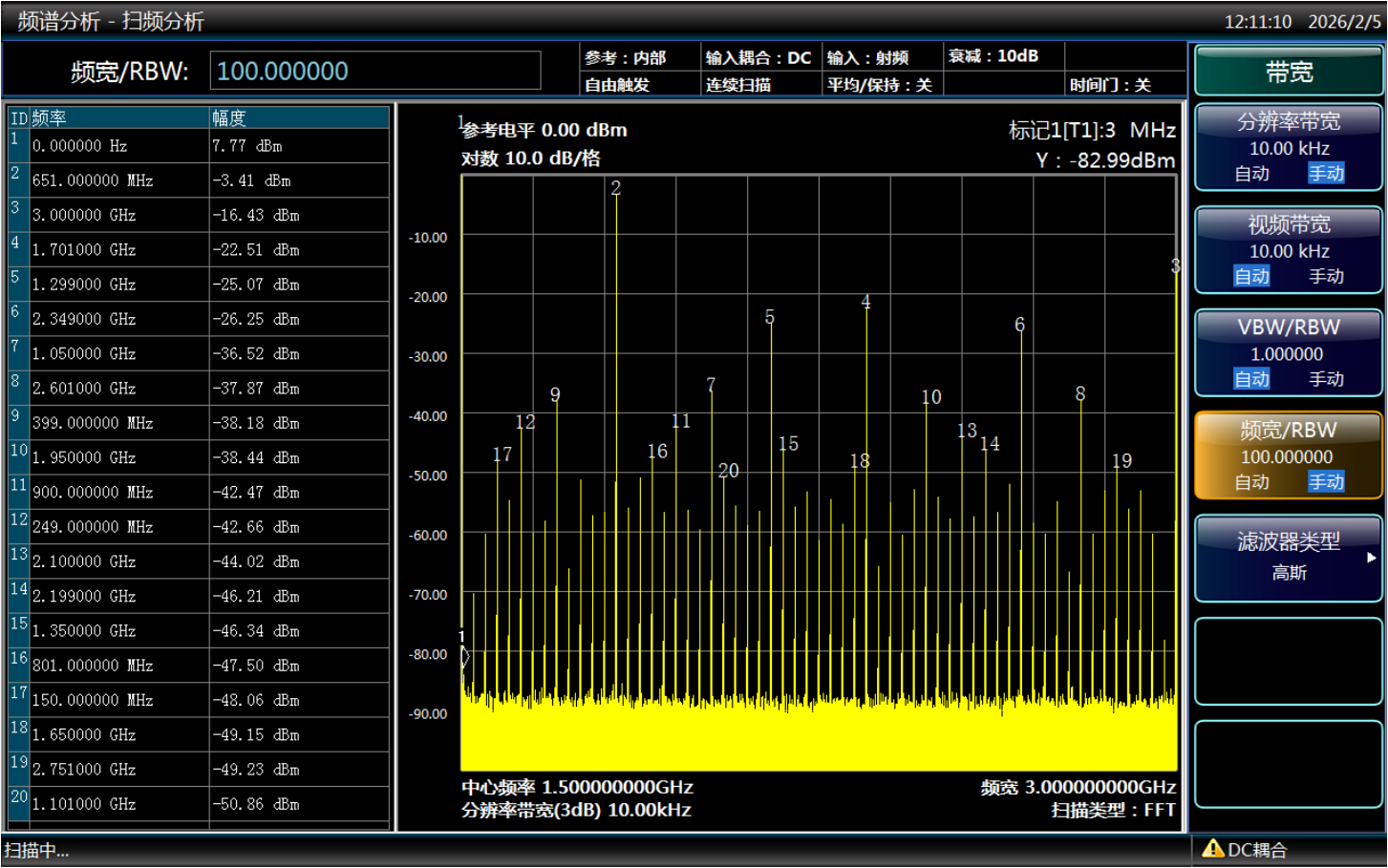
600MHz扫频测试





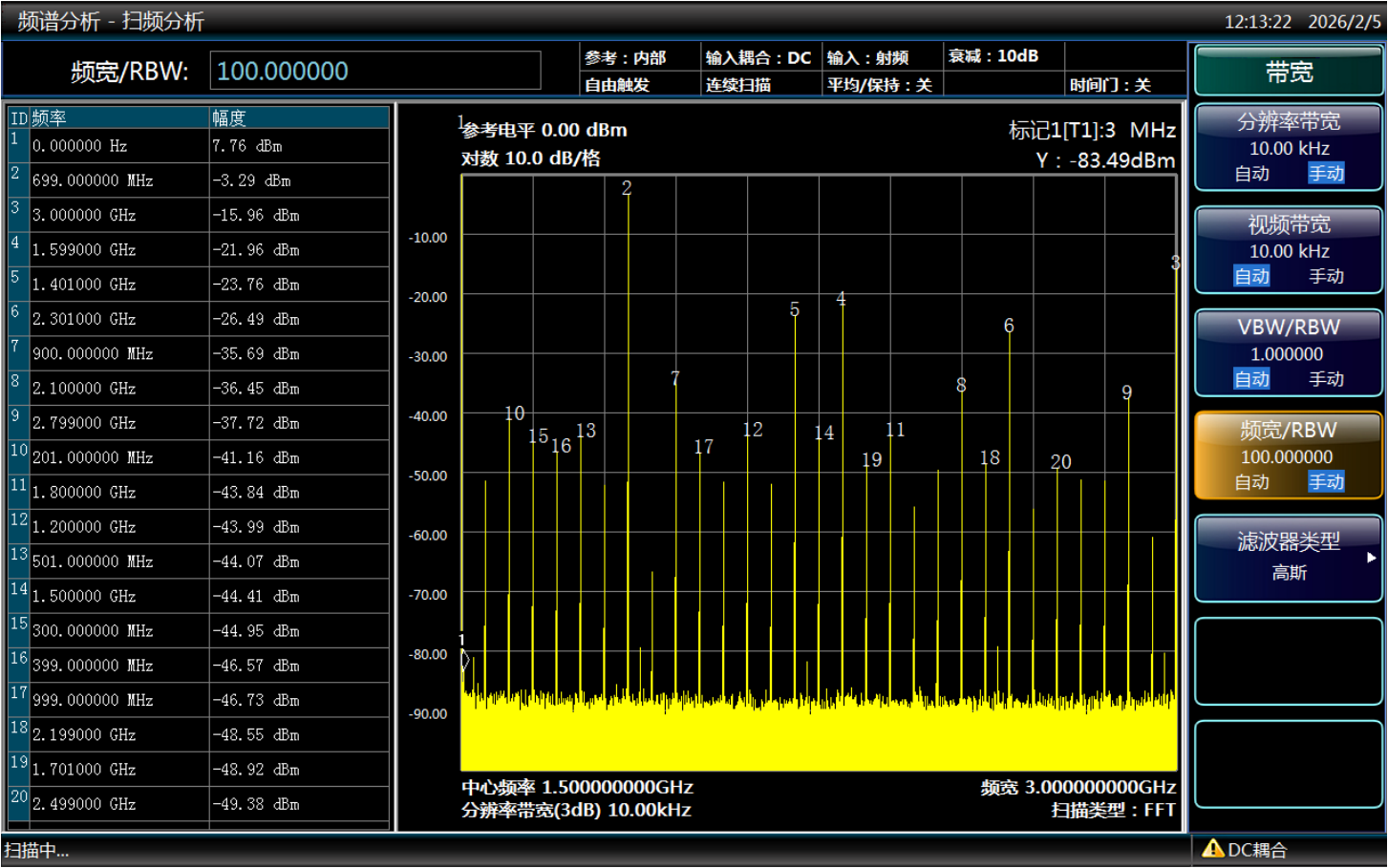
650MHz扫频测试





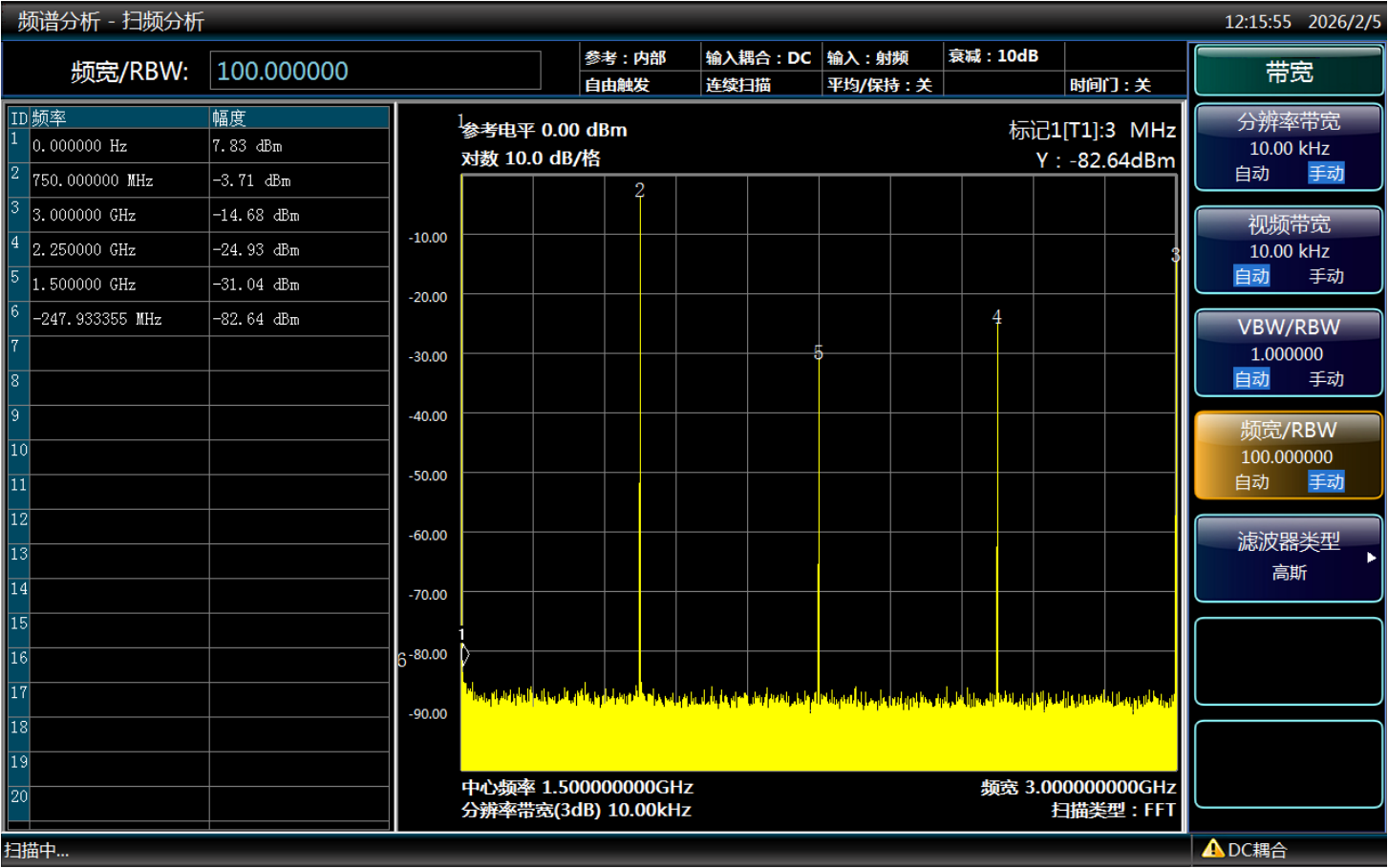
700MHz扫频测试





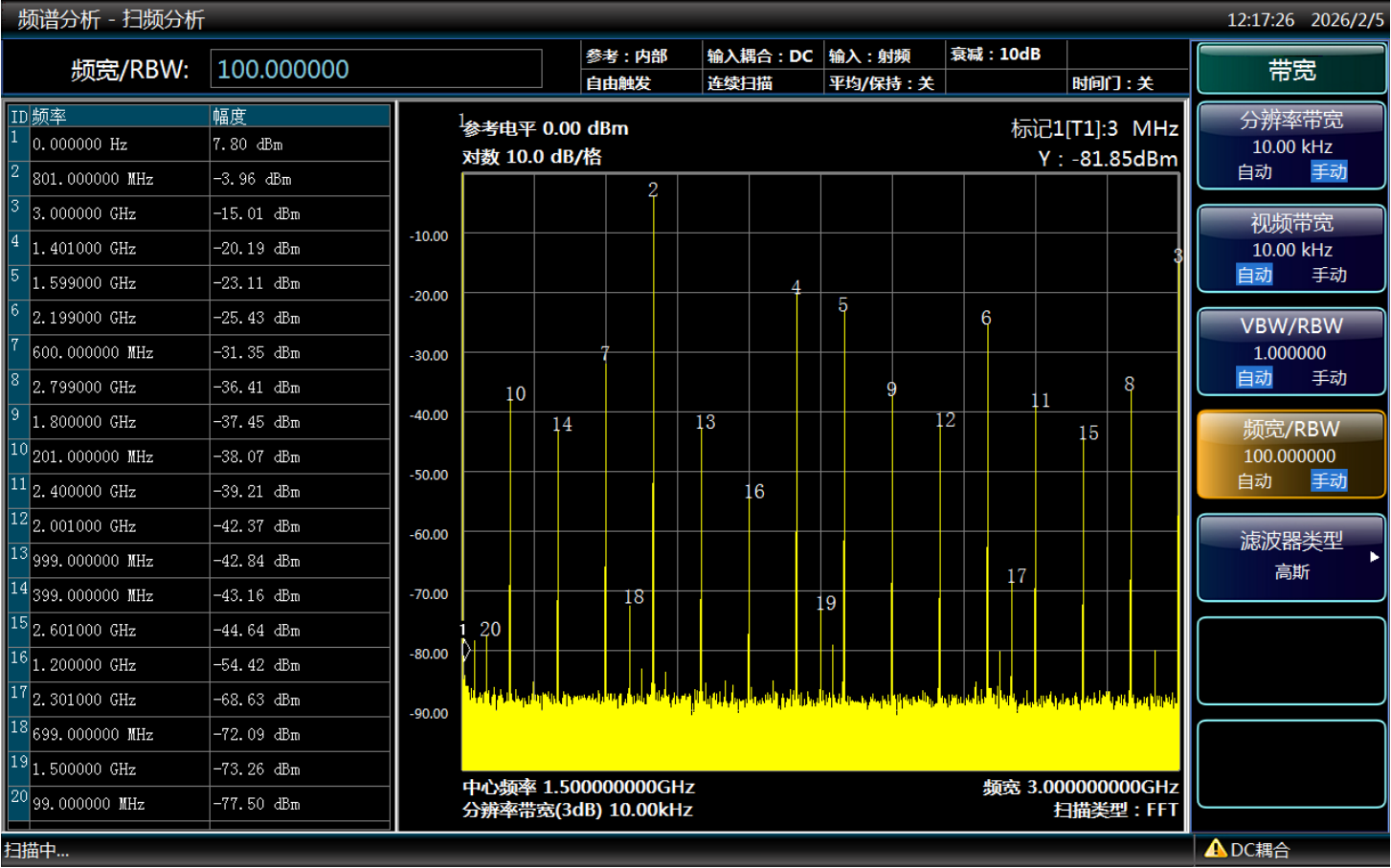
750MHz扫频测试





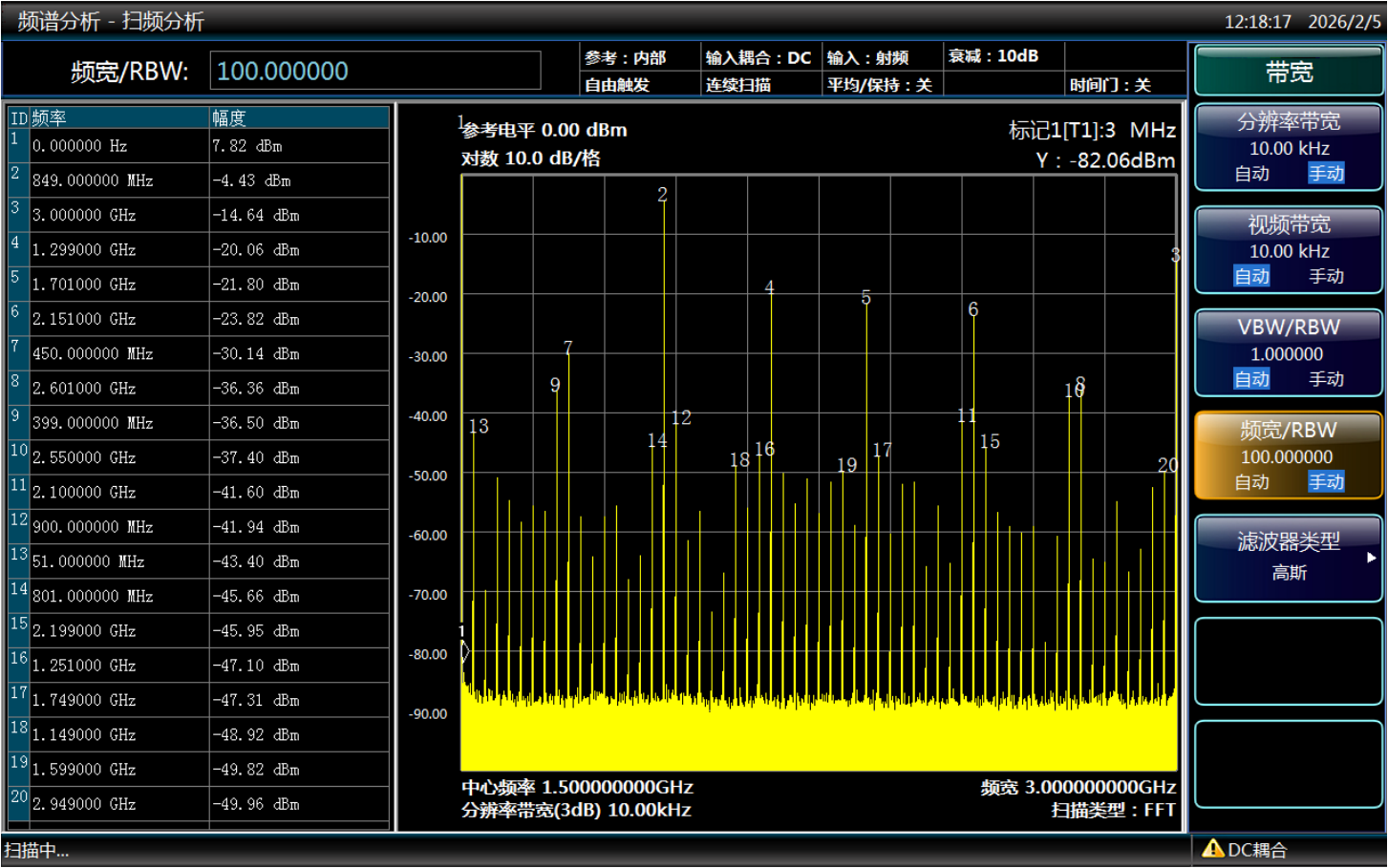
800MHz扫频测试





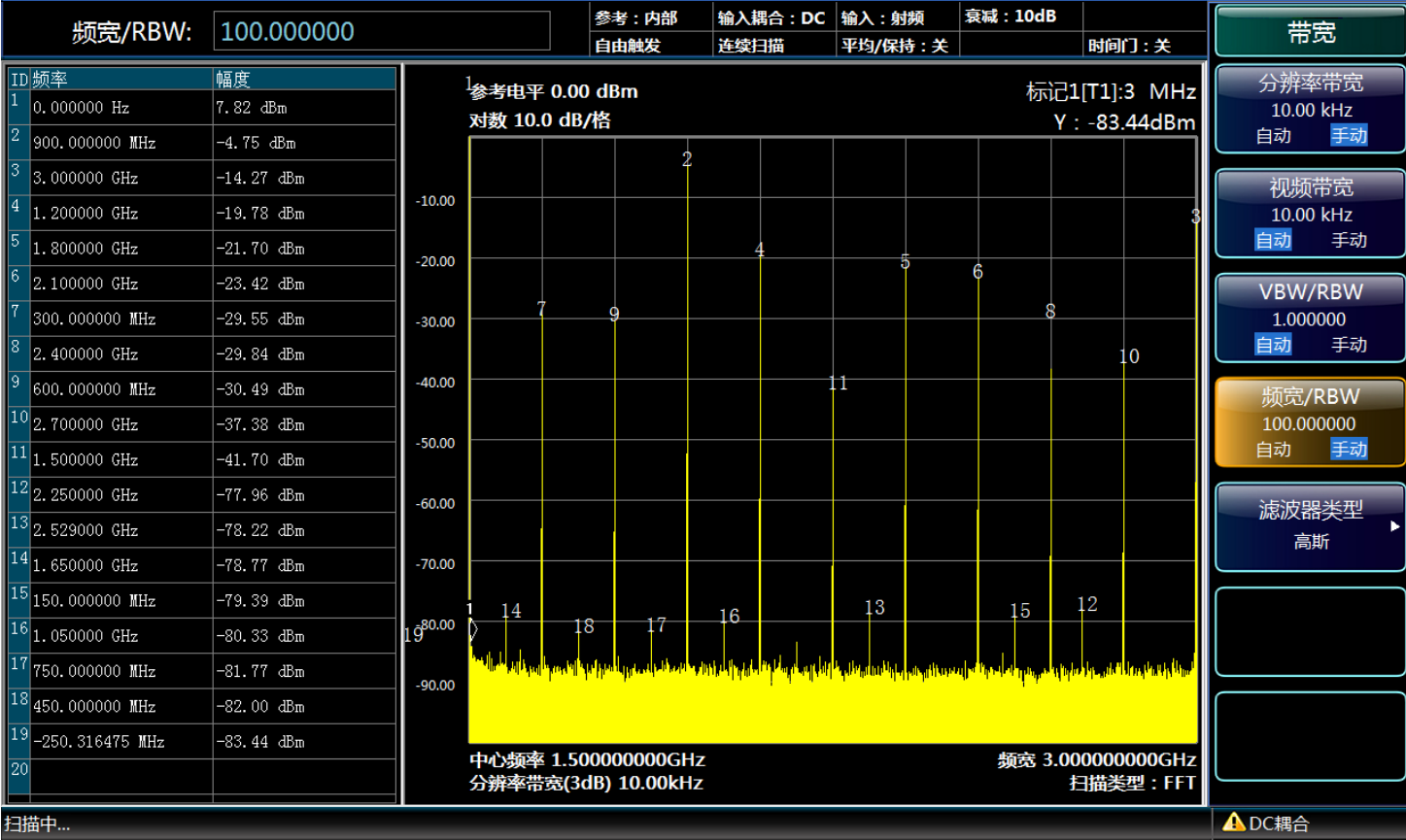
850MHz扫频测试





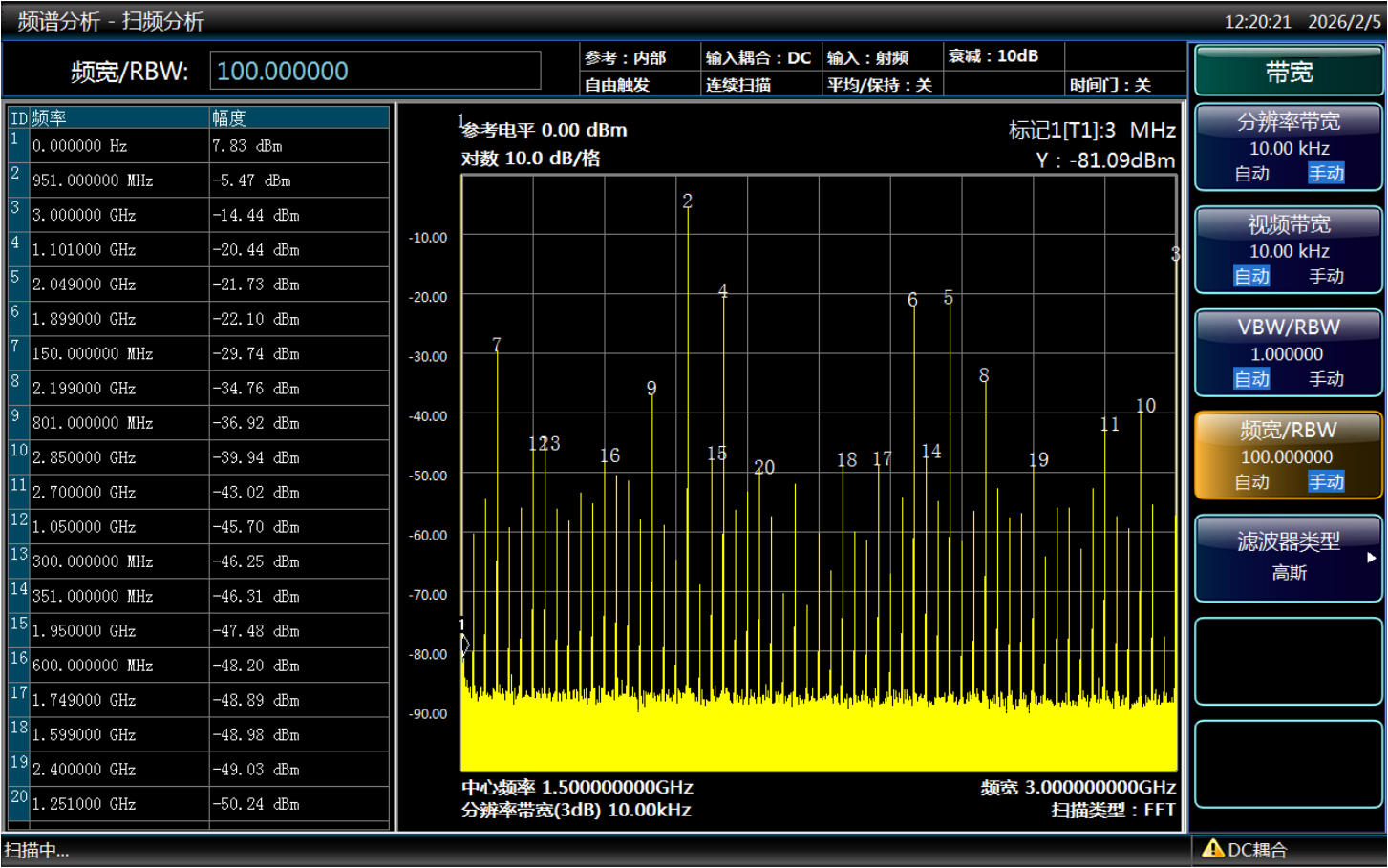
900MHz扫频测试





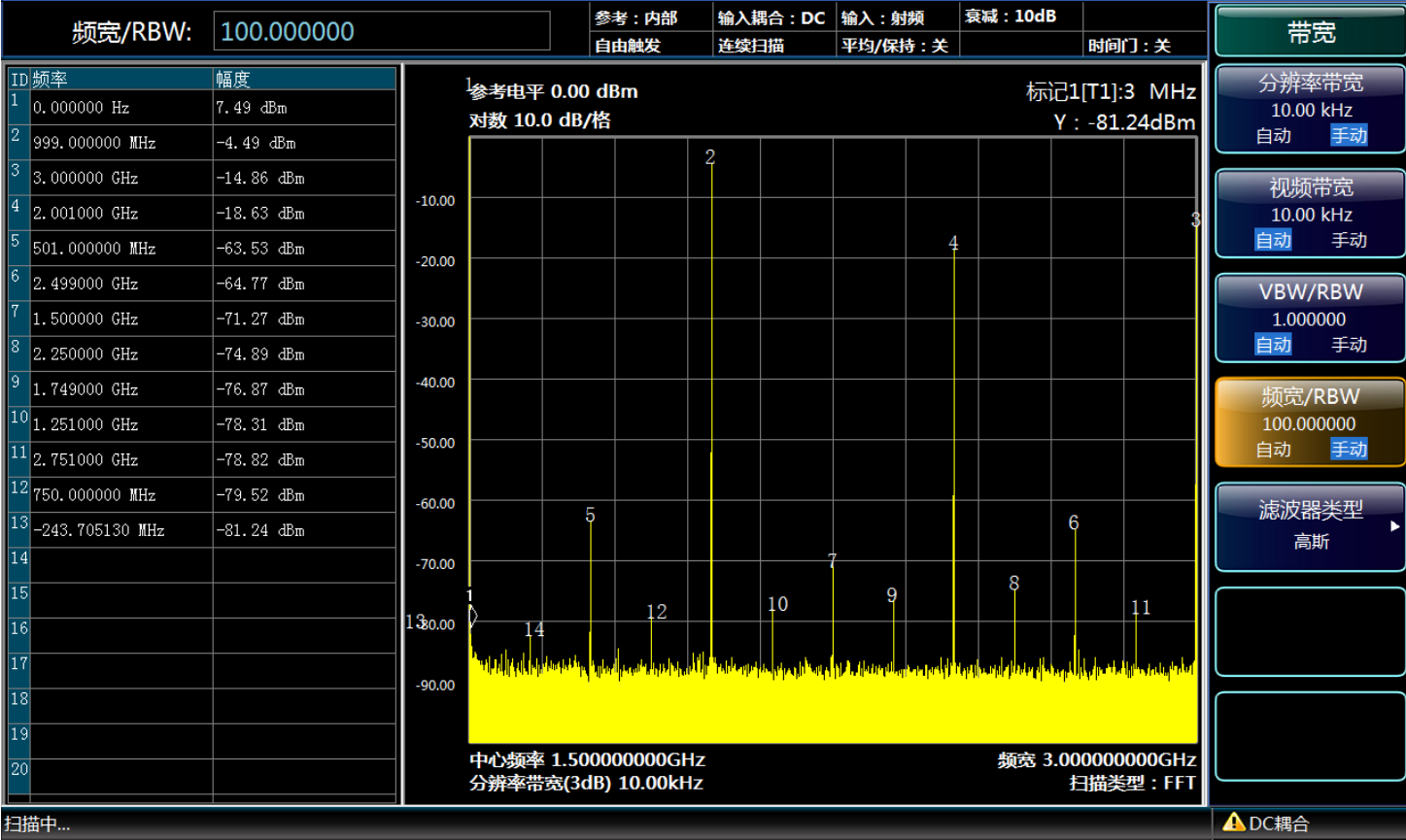
950MHz扫频测试





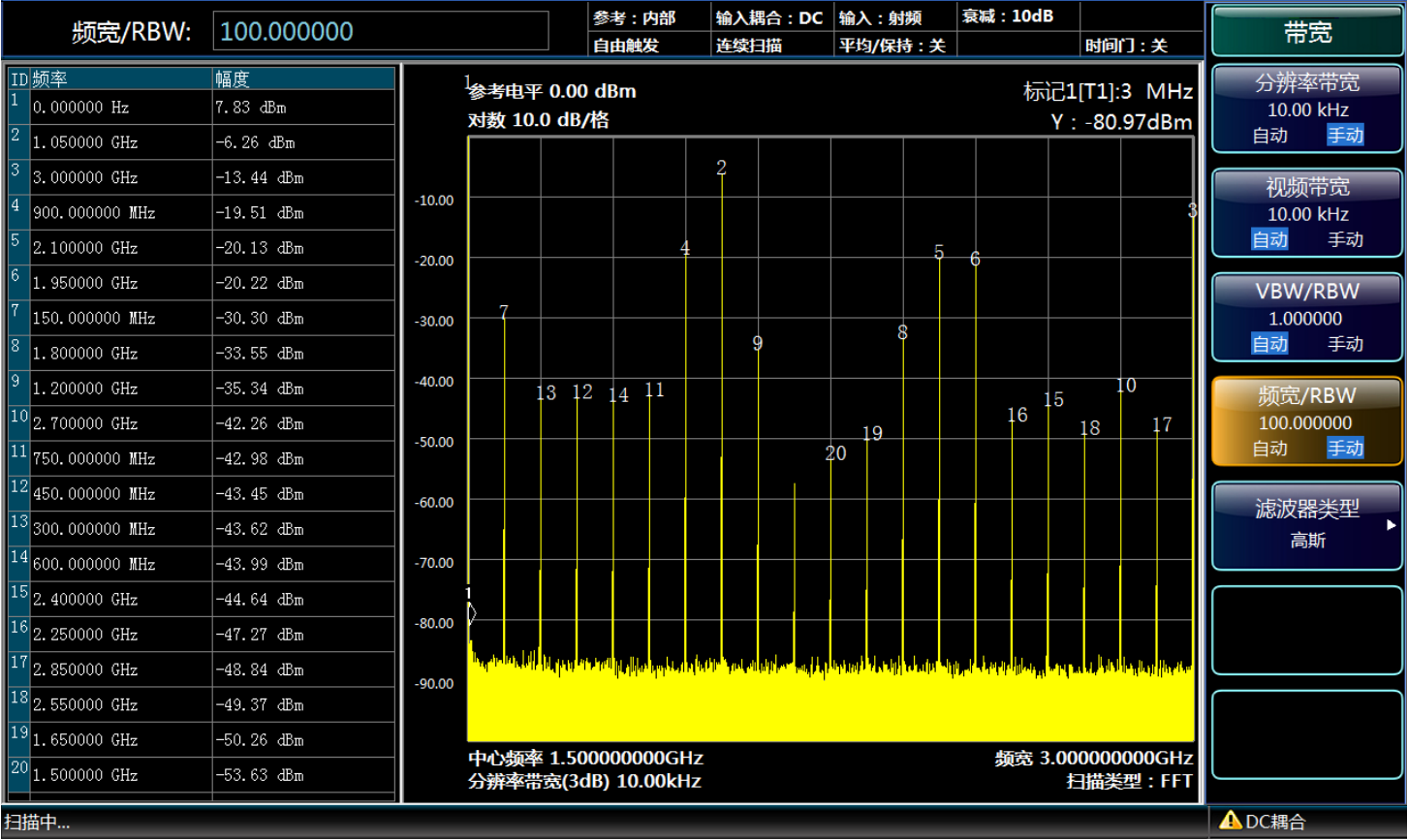
1000MHz扫频测试





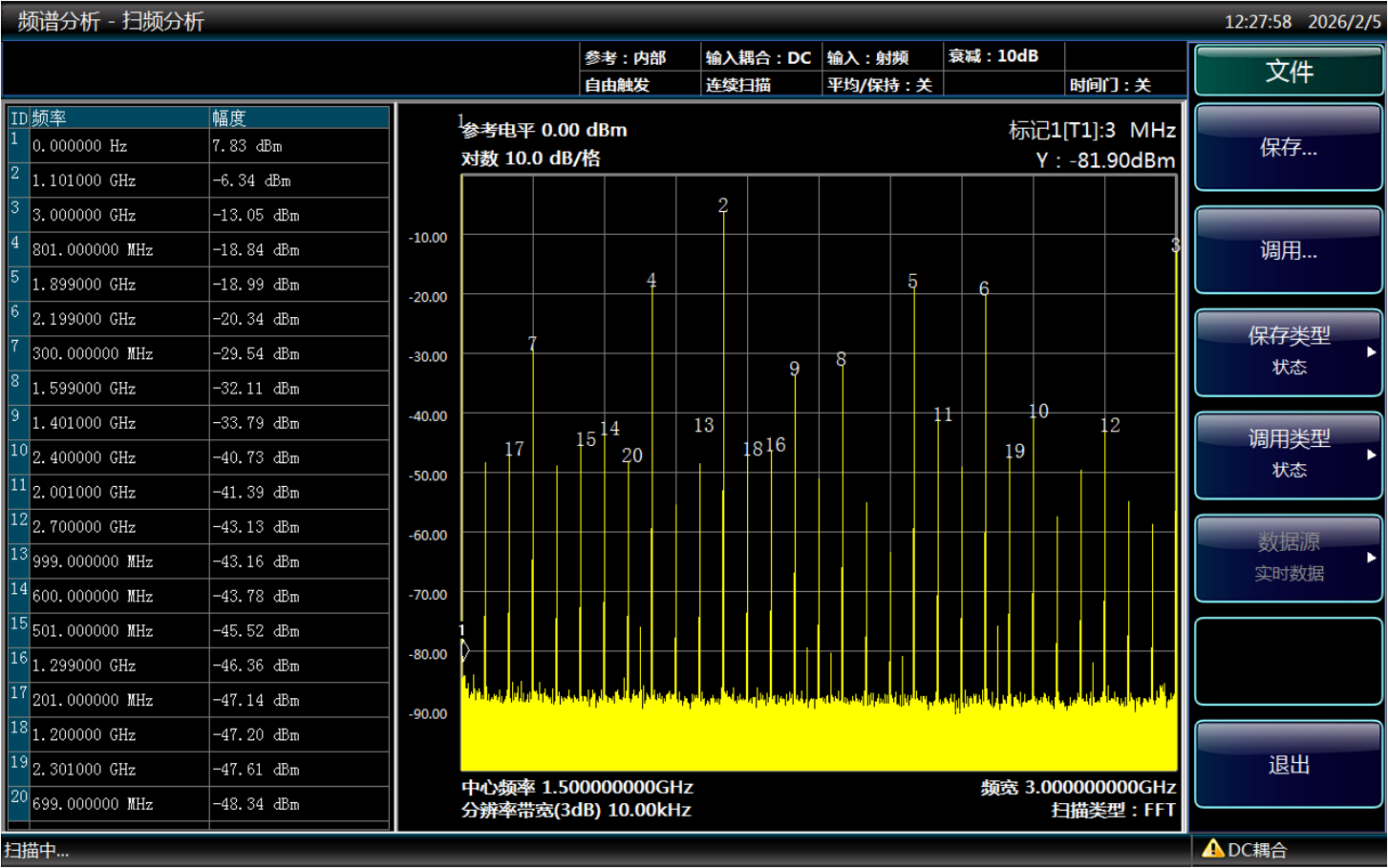
1050MHz扫频测试





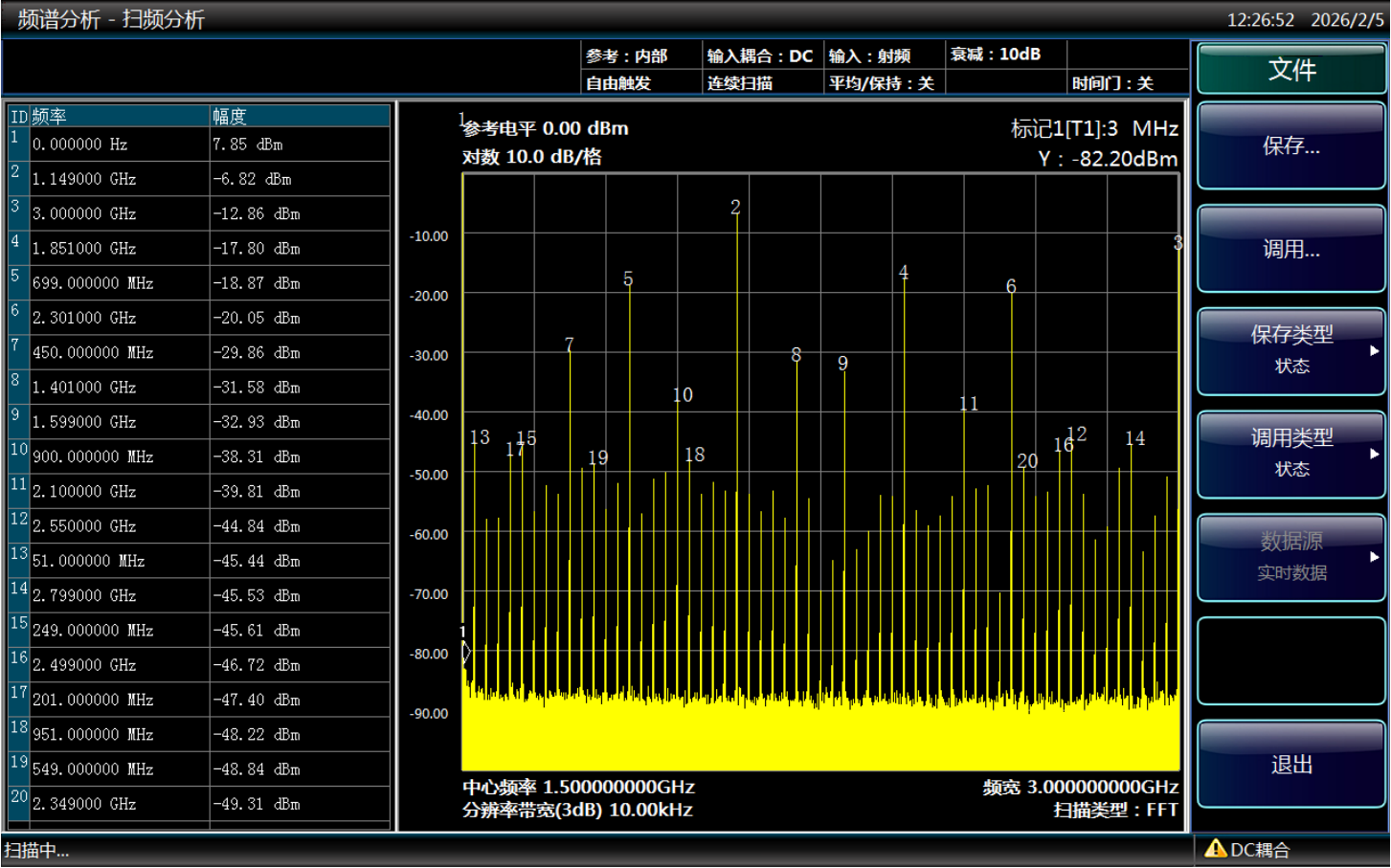
1100MHz扫频测试



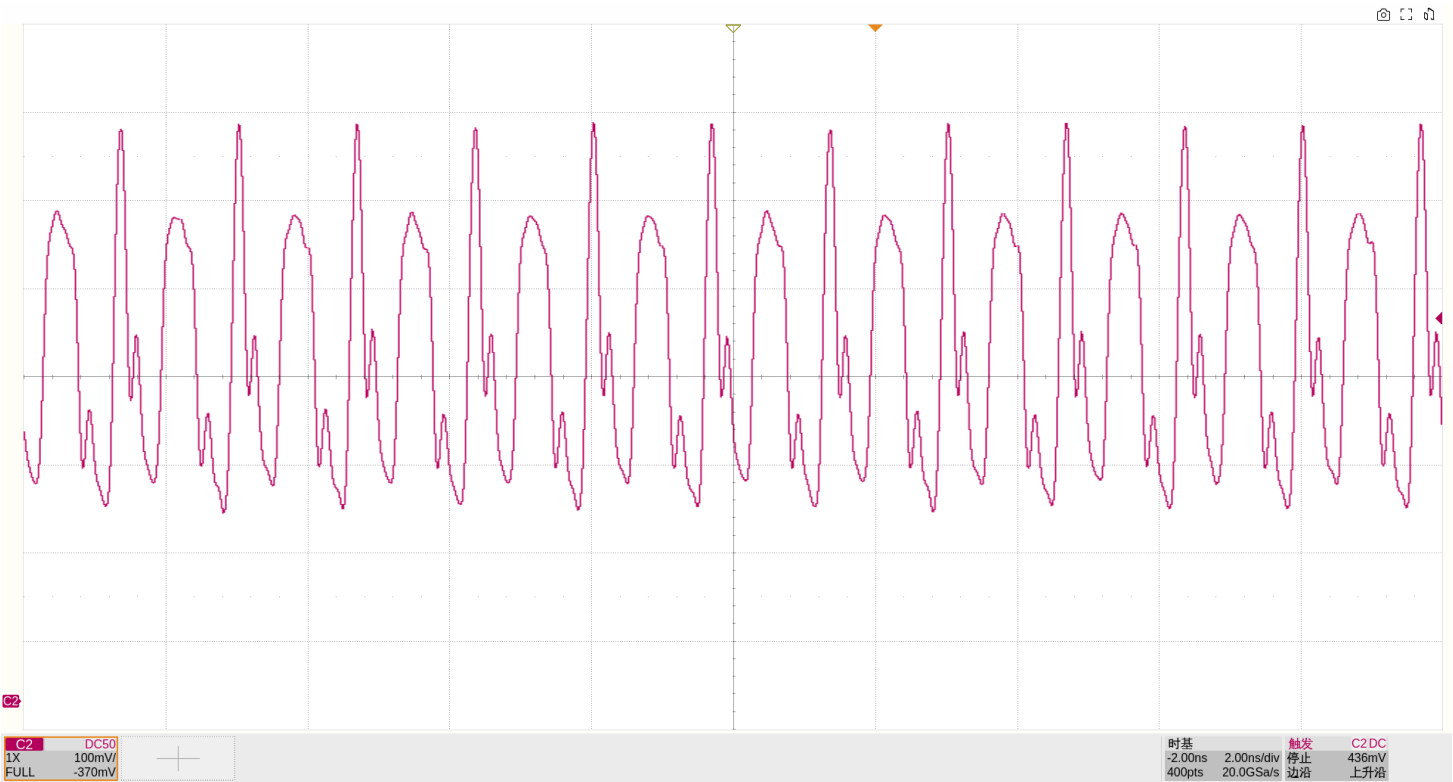


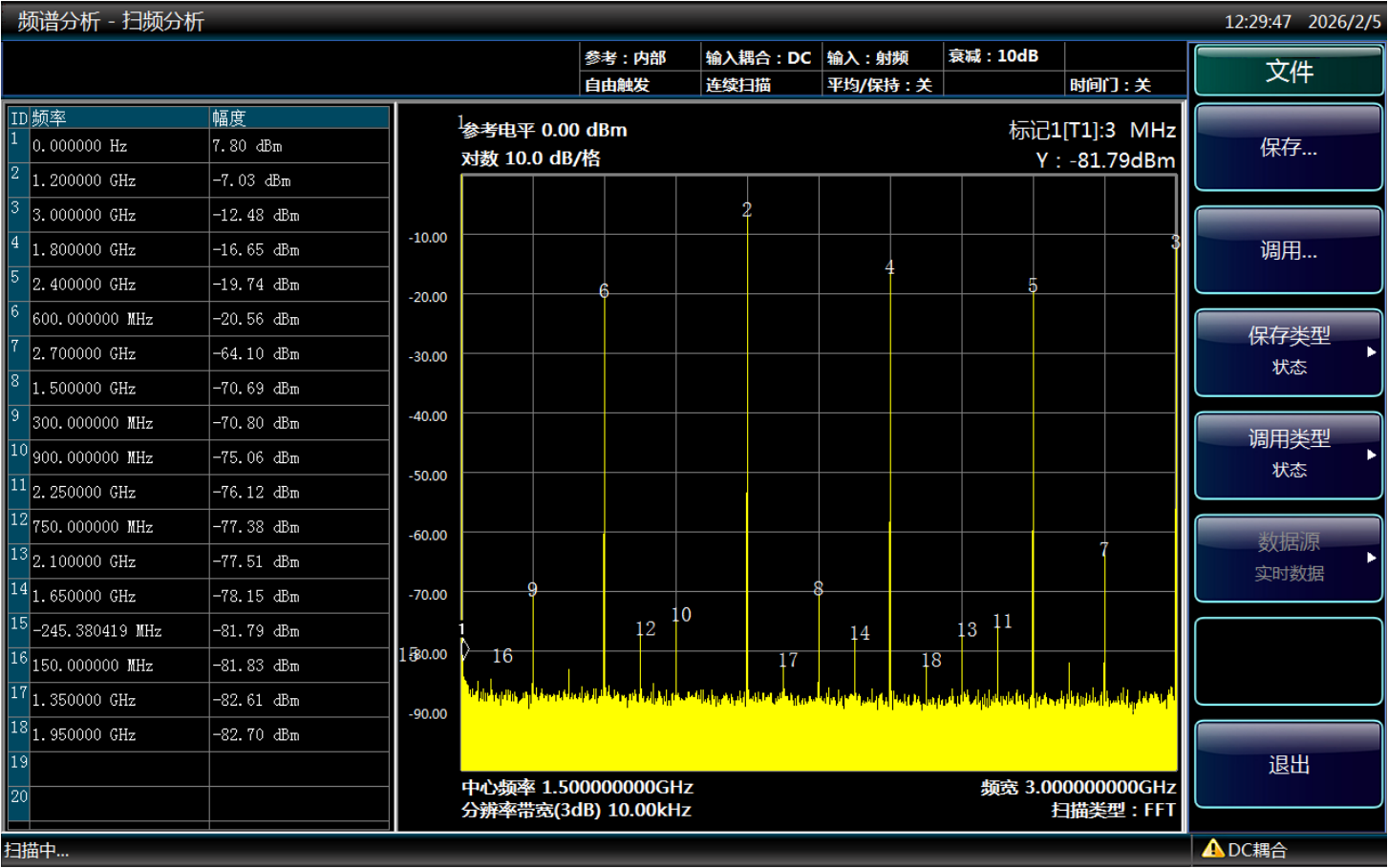
1150MHz扫频测试

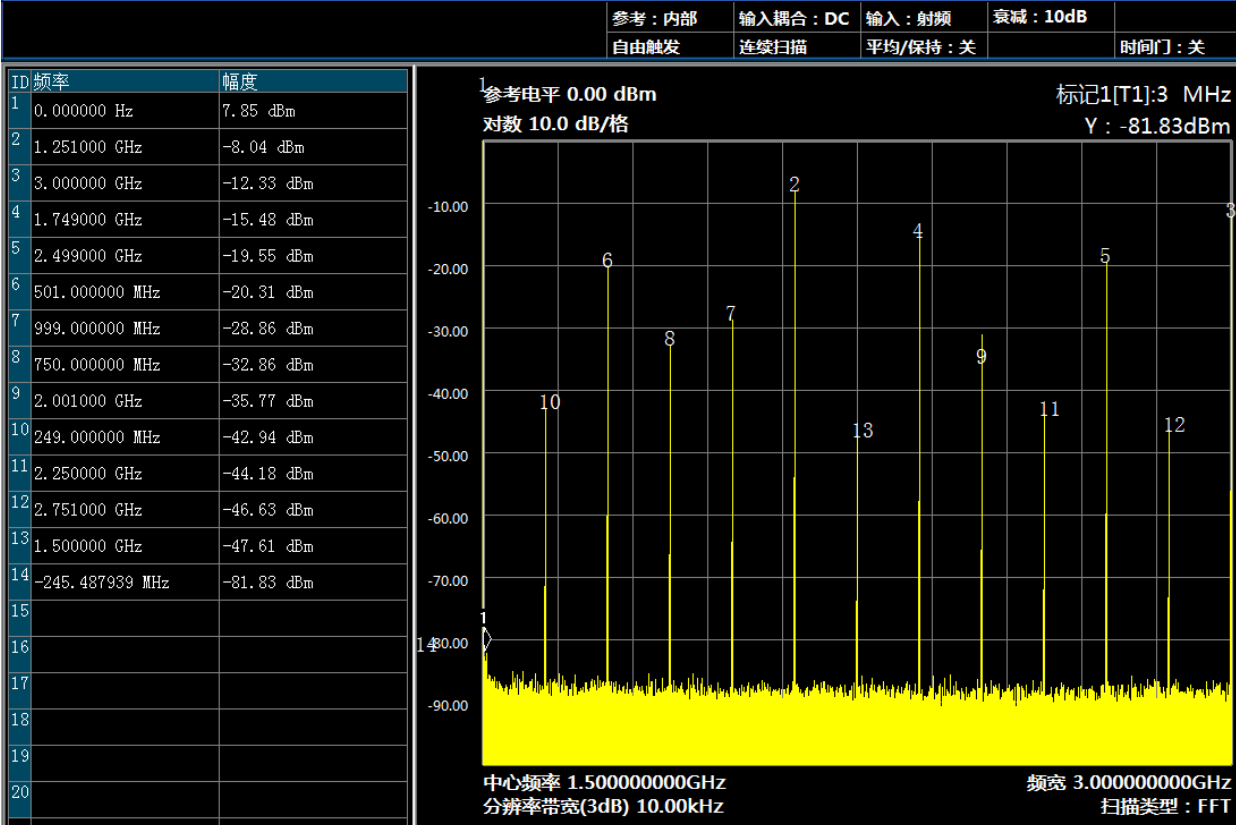




1200MHz扫频测试







文件

保存...

调用...

保存类型
状态

调用类型
状态

数据源
实时数据

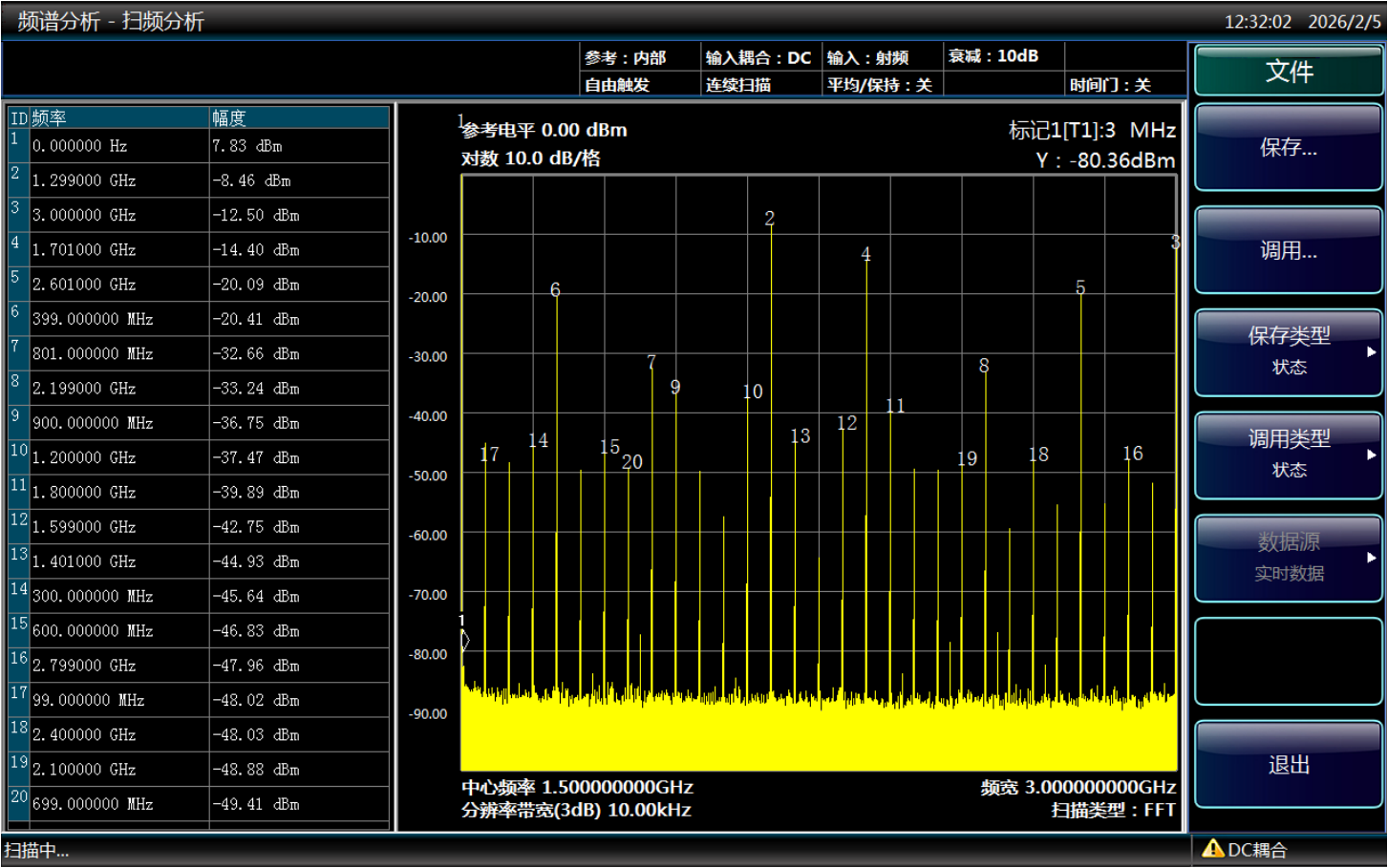
退出

⚠ DC耦合

扫描中...

1300MHz扫频测试





1350MHz扫频测试



参考：内部 输入耦合：DC 输入：射频 衰减：10dB
自由触发 连续扫描 平均/保持：关 时间门：关

文件

保存...

调用...

保存类型

状态

调用类型

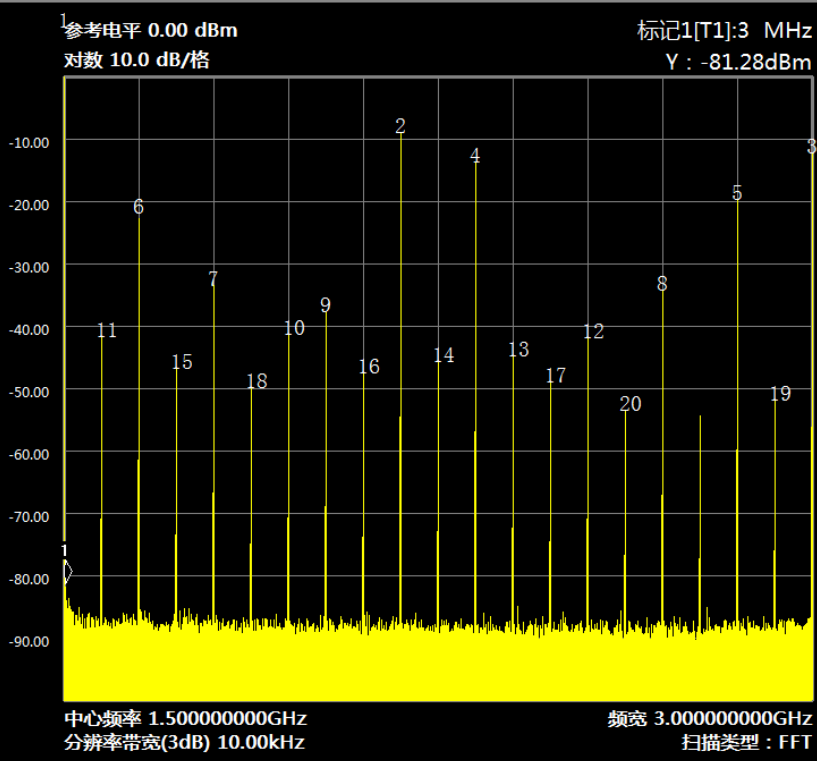
状态

数据源

实时数据

退出

ID	频率	幅度
1	0.000000 Hz	7.85 dBm
2	1.350000 GHz	-8.97 dBm
3	3.000000 GHz	-12.31 dBm
4	1.650000 GHz	-13.78 dBm
5	2.700000 GHz	-19.73 dBm
6	300.000000 MHz	-21.90 dBm
7	600.000000 MHz	-33.60 dBm
8	2.400000 GHz	-34.23 dBm
9	1.050000 GHz	-37.82 dBm
10	900.000000 MHz	-41.32 dBm
11	2.100000 GHz	-41.93 dBm
12	1.800000 GHz	-44.78 dBm
13	150.000000 MHz	-45.31 dBm
14	1.500000 GHz	-45.64 dBm
15	450.000000 MHz	-46.79 dBm
16	1.200000 GHz	-47.56 dBm
17	1.950000 GHz	-49.00 dBm
18	750.000000 MHz	-49.92 dBm
19	2.850000 GHz	-51.93 dBm
20	2.250000 GHz	-53.52 dBm

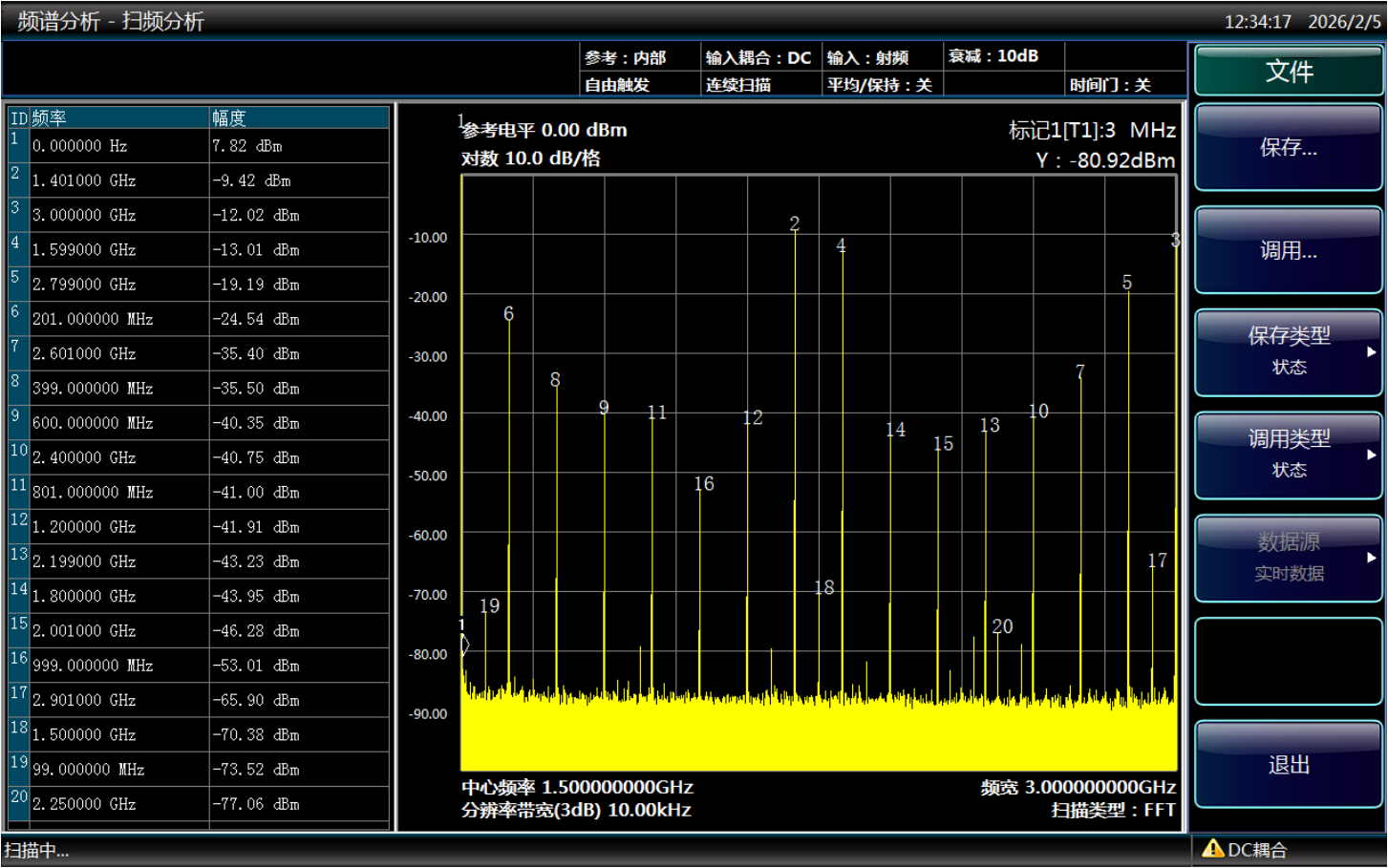


扫描中...

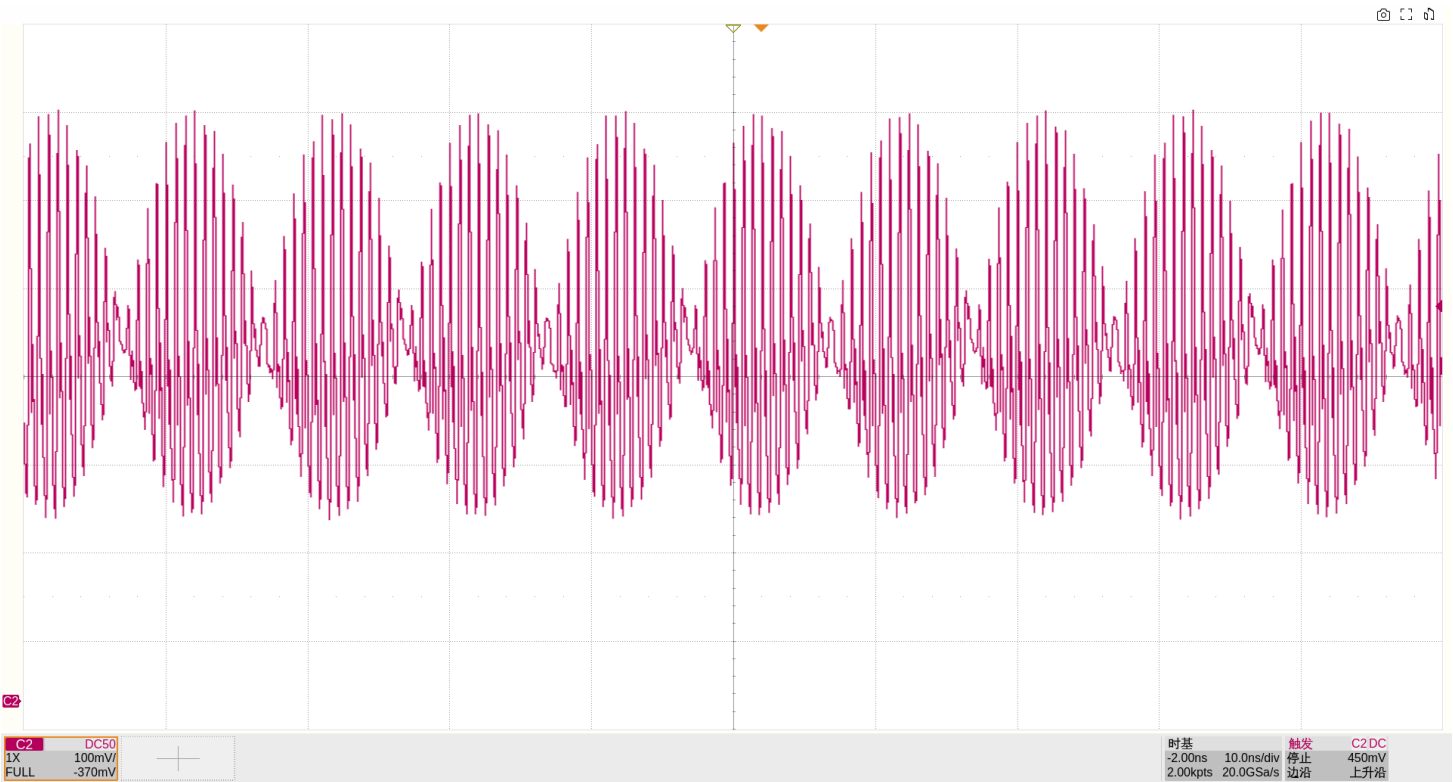
⚠ DC耦合

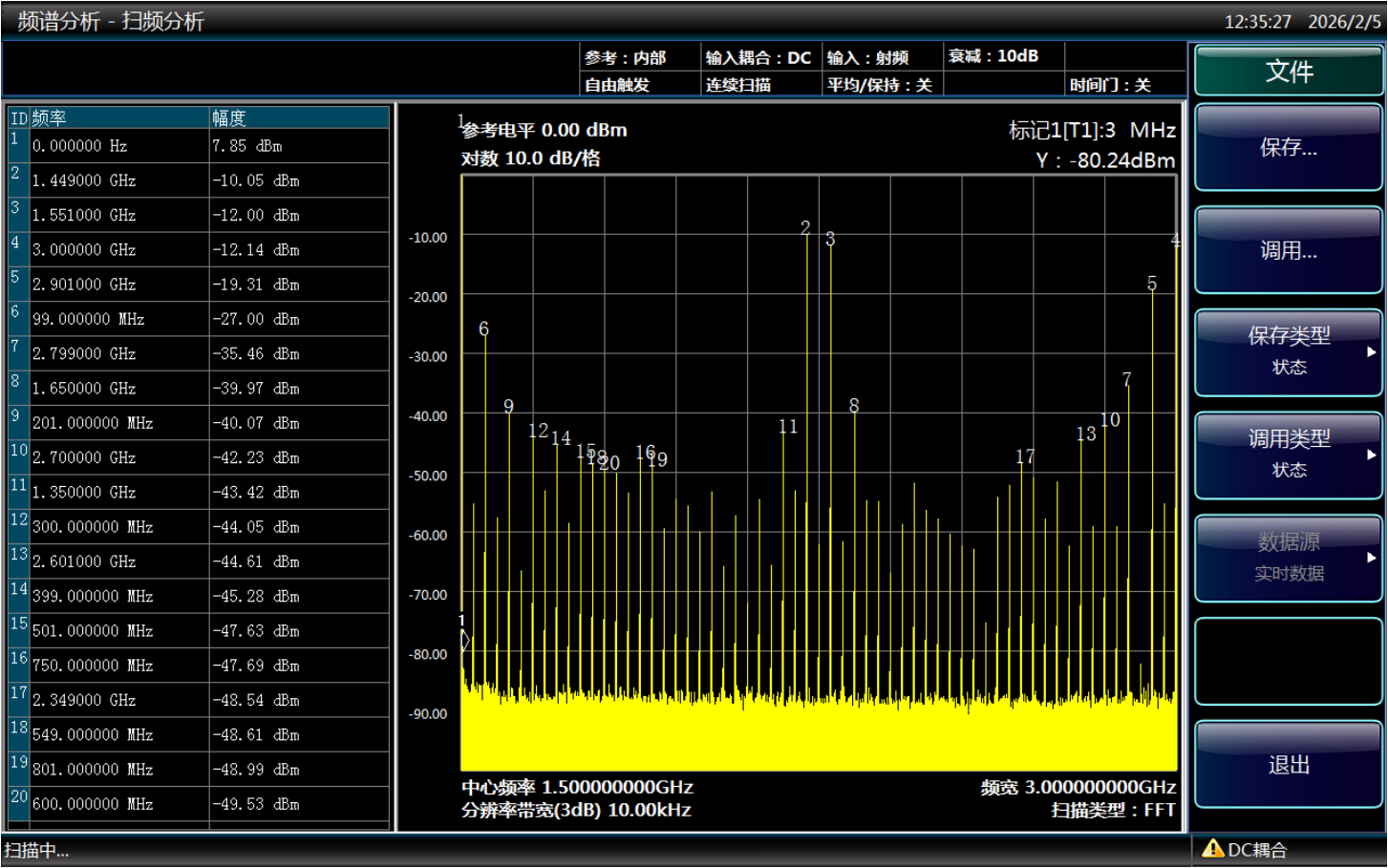
1400MHz扫频测试





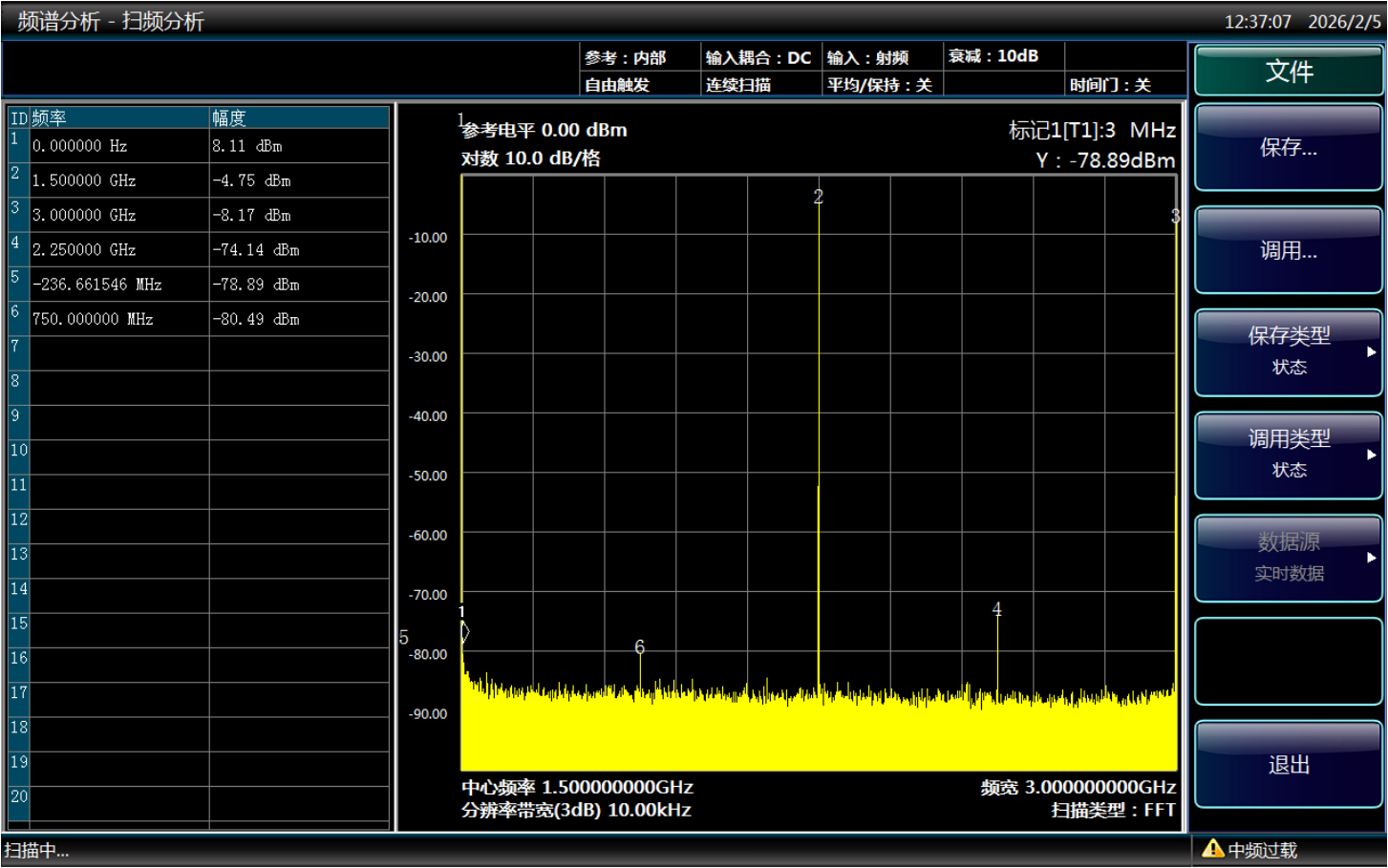
1450MHz扫频测试





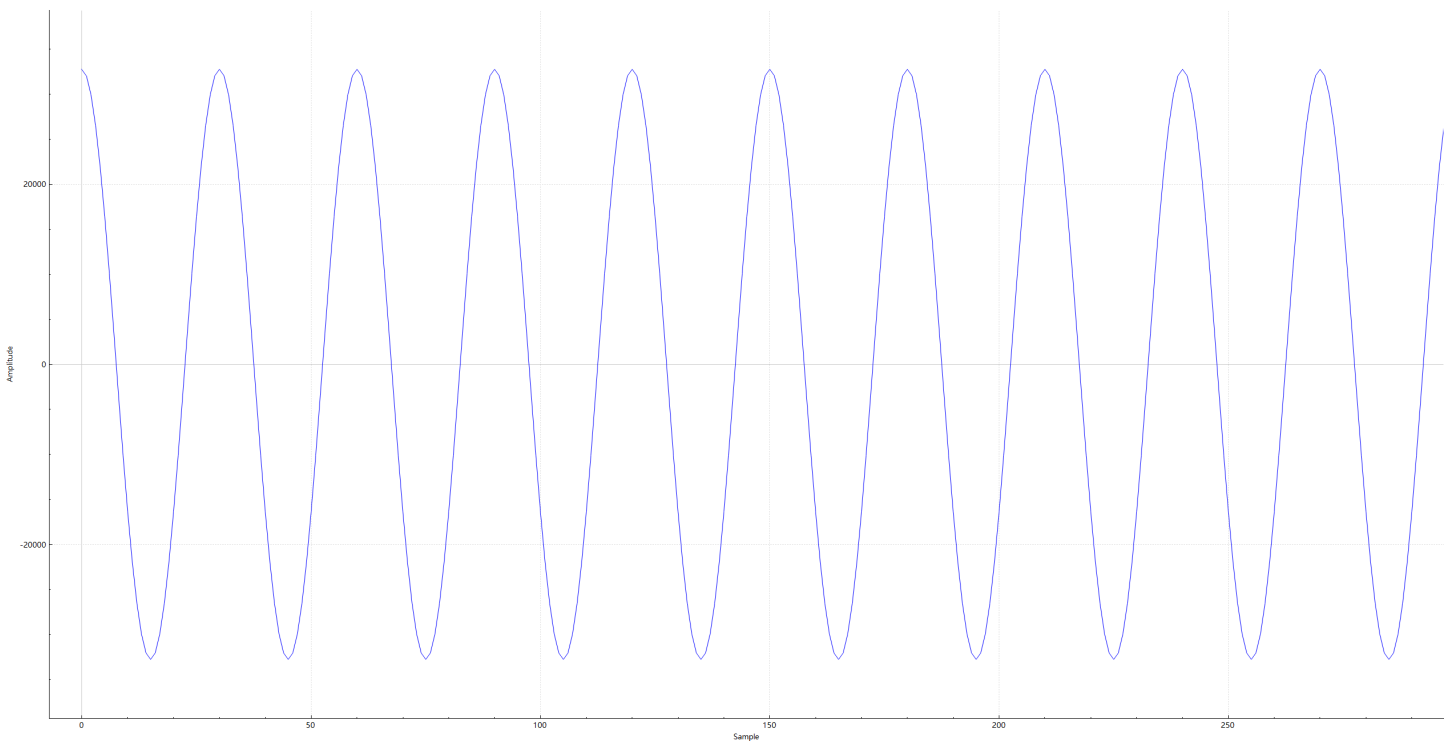
1500MHz扫频测试



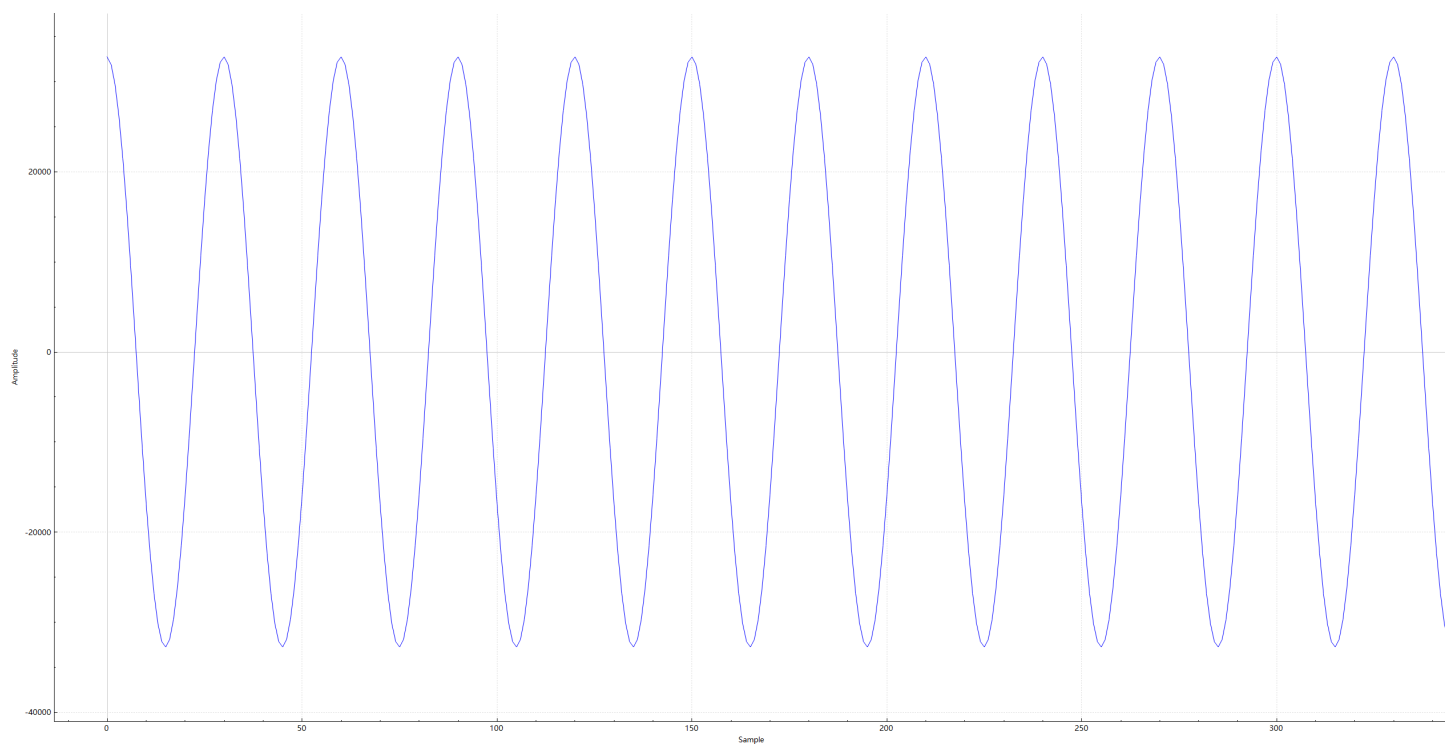


扫相

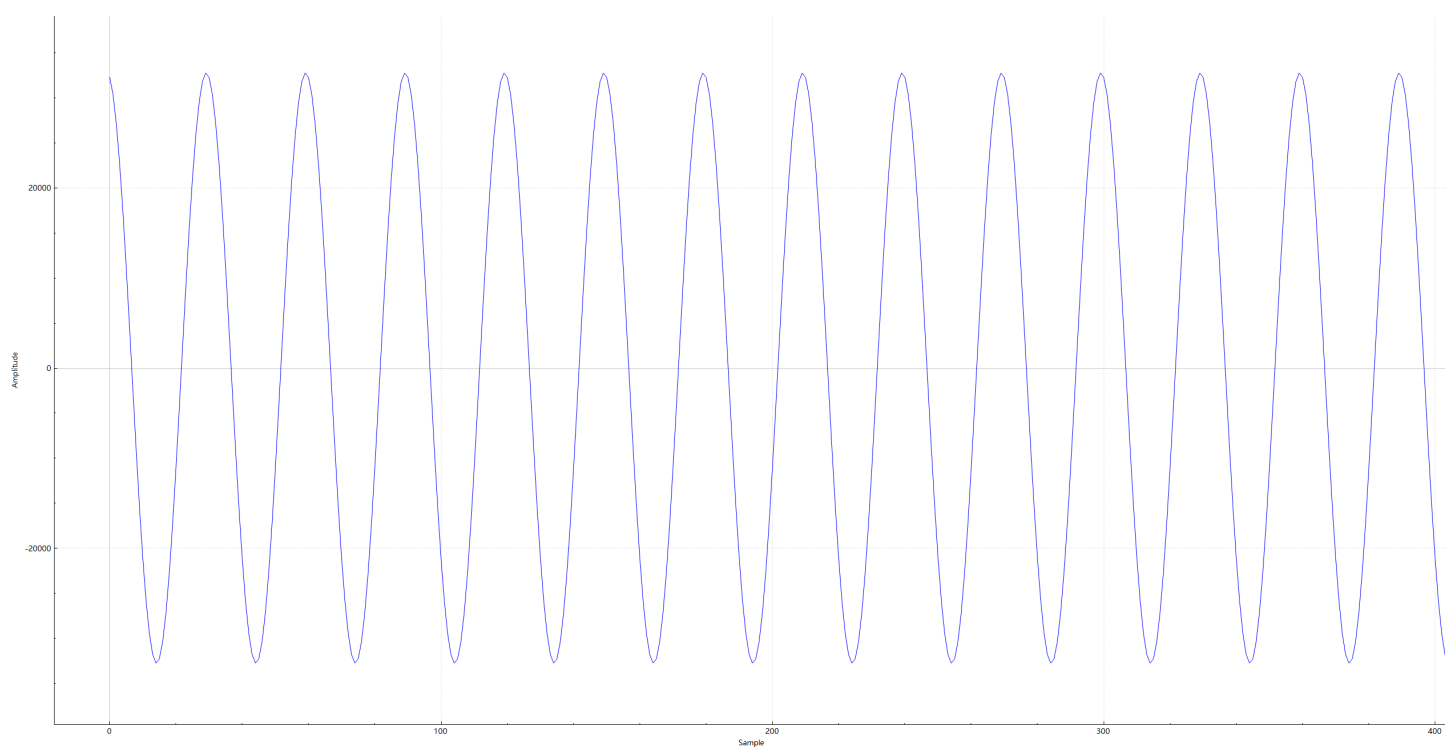
0度扫相测试



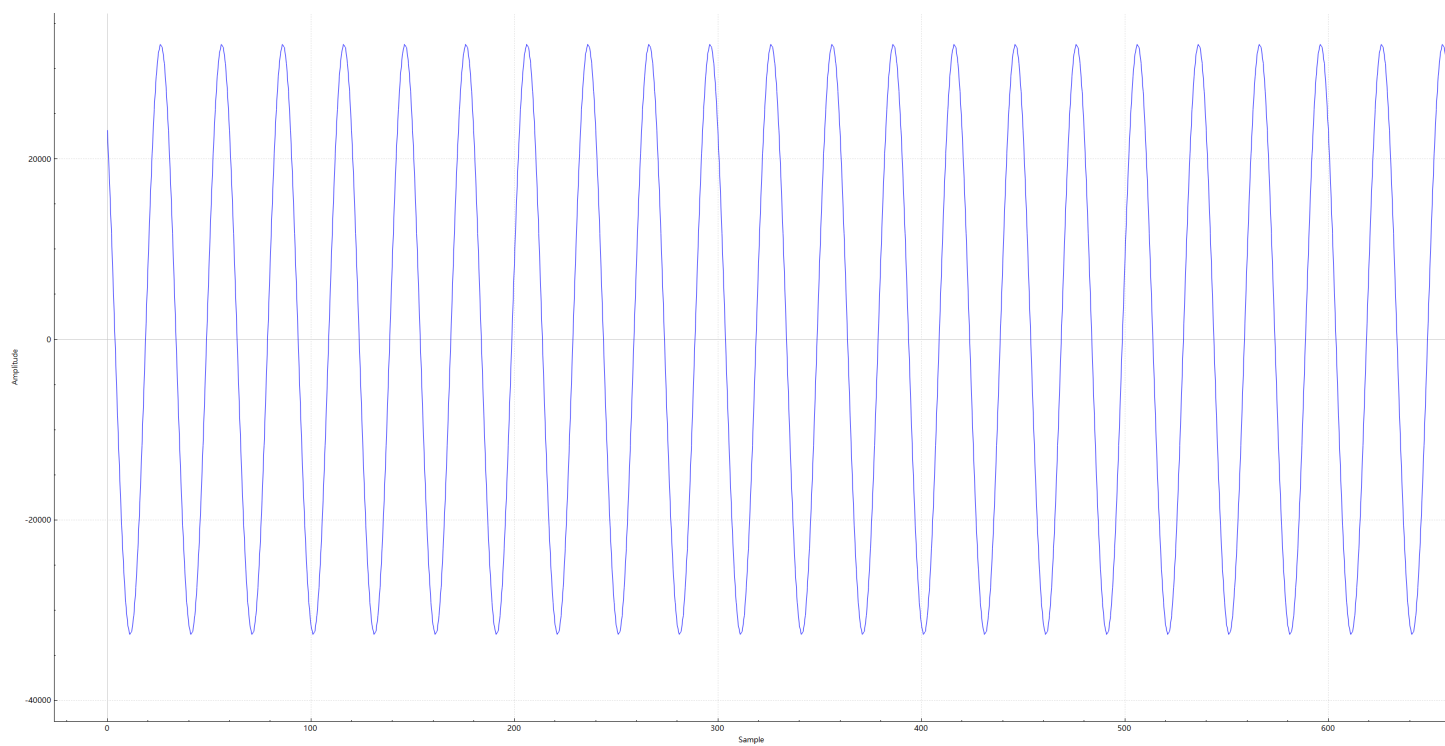
1度扫相测试



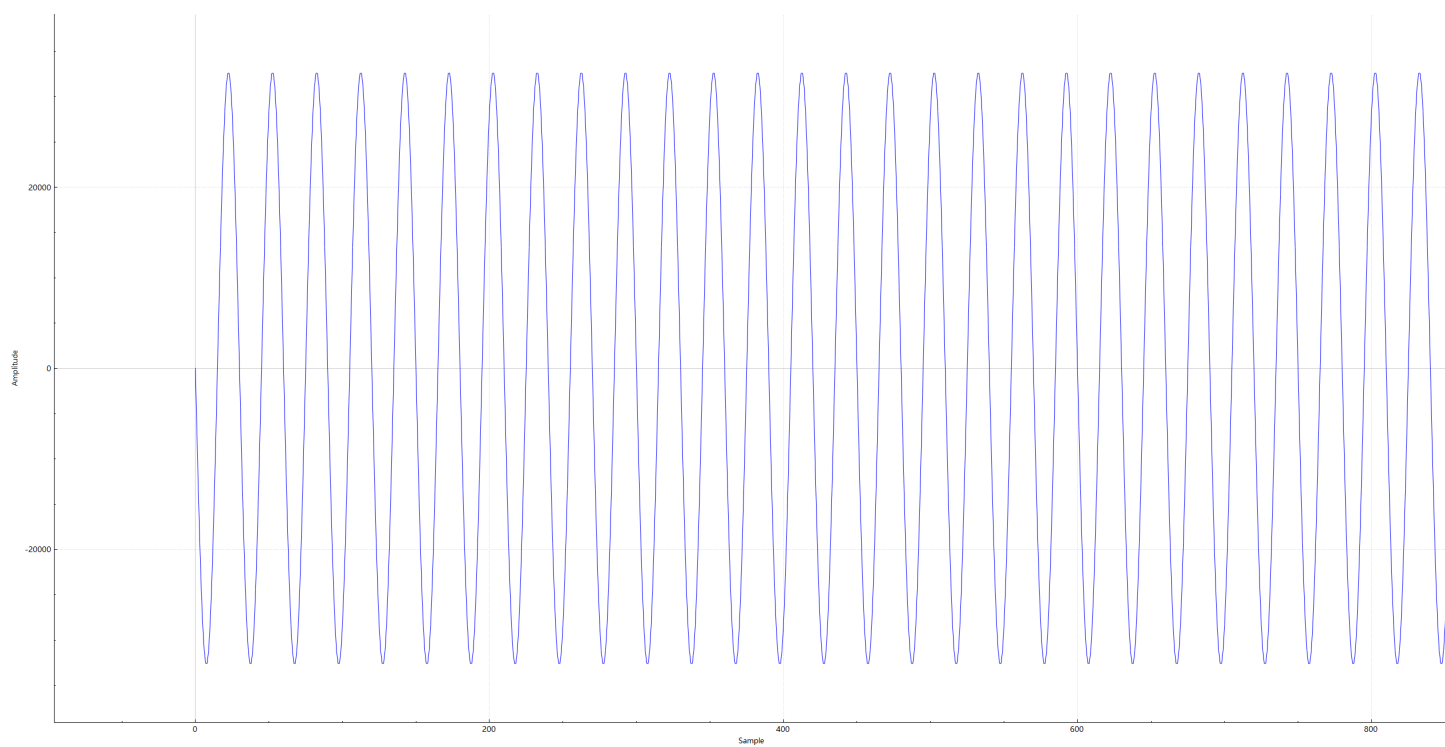
10度扫相测试



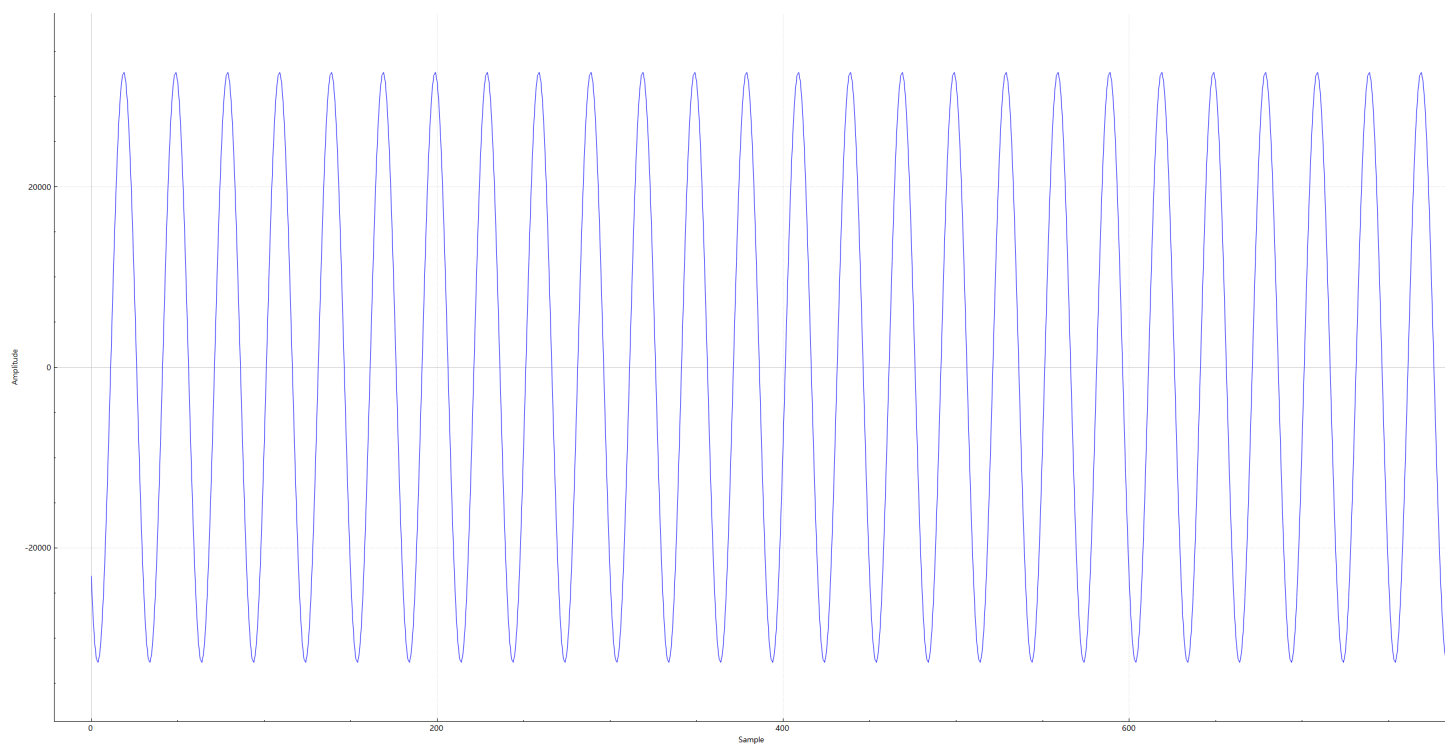
45度扫相测试



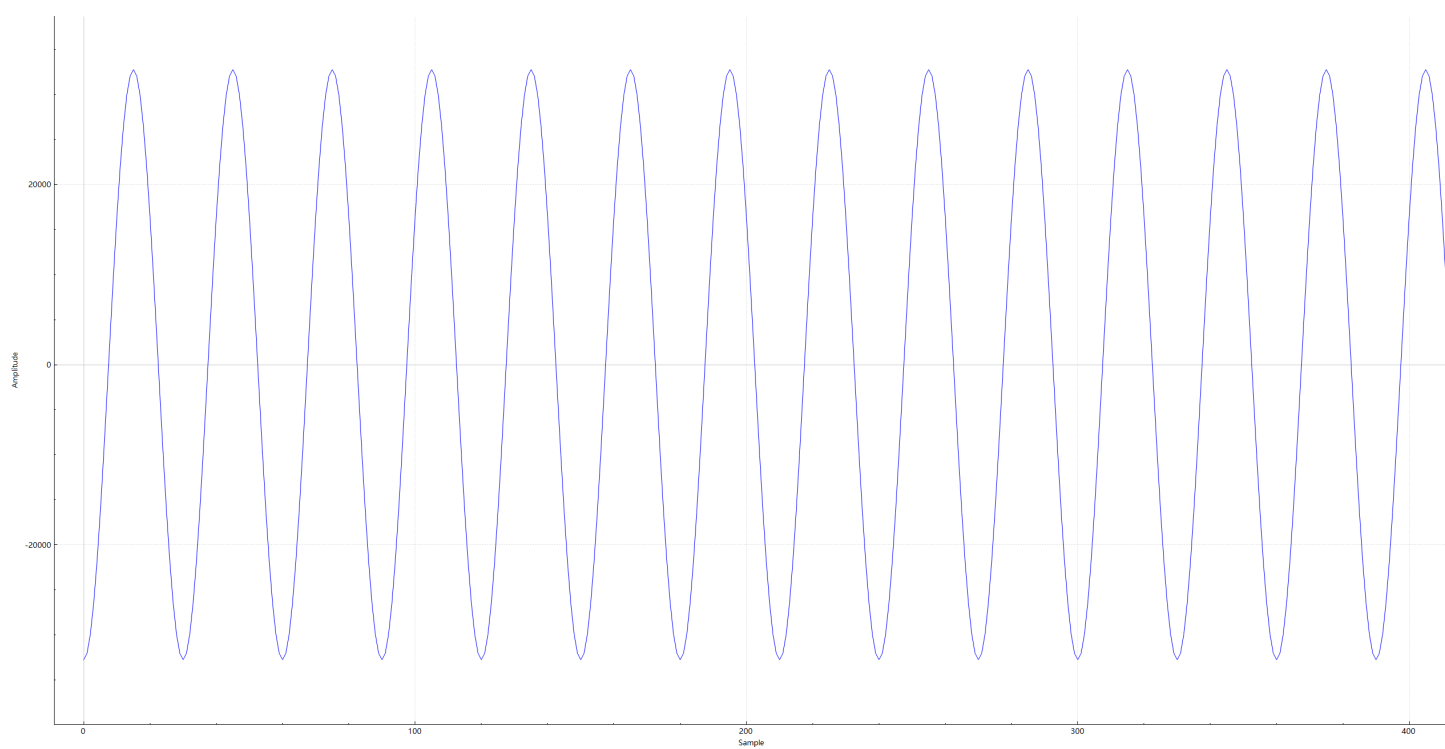
90度扫相测试



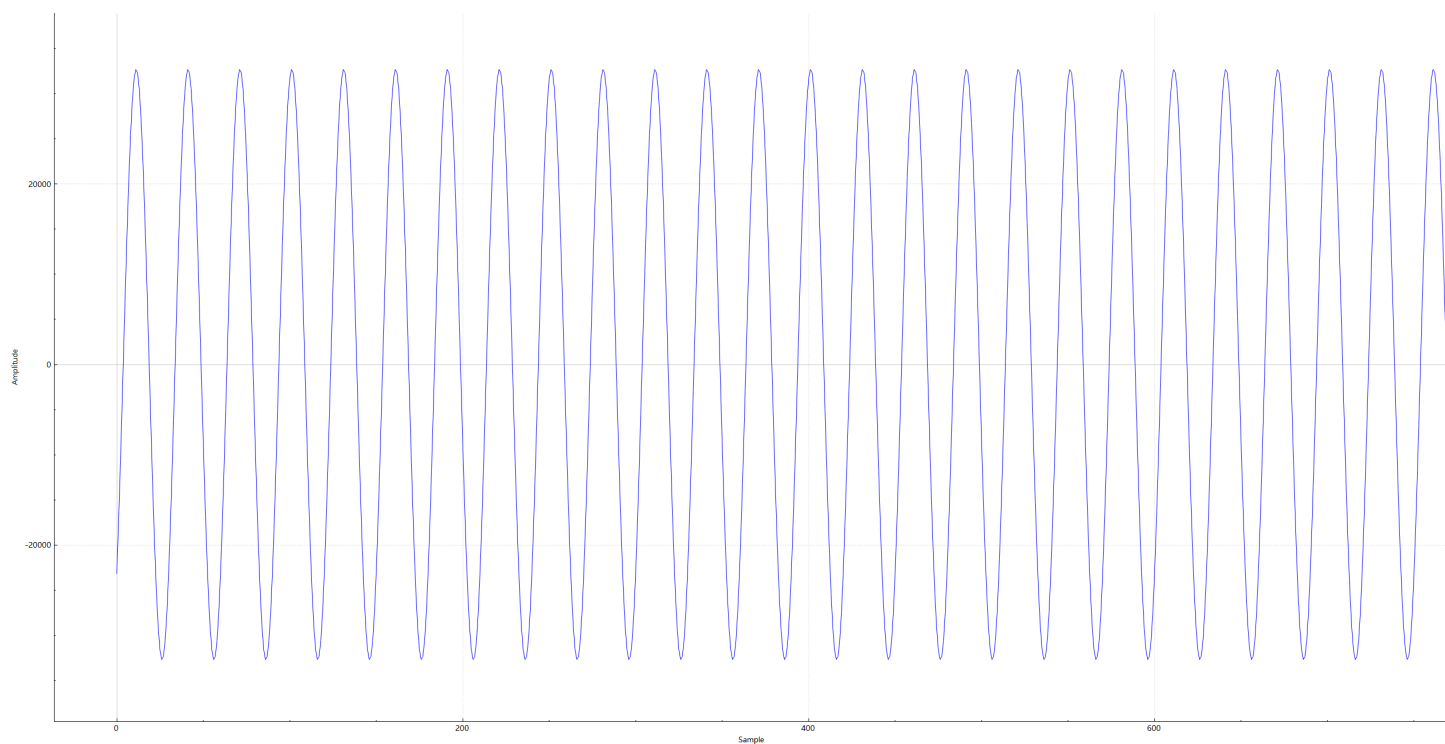
135度扫相测试



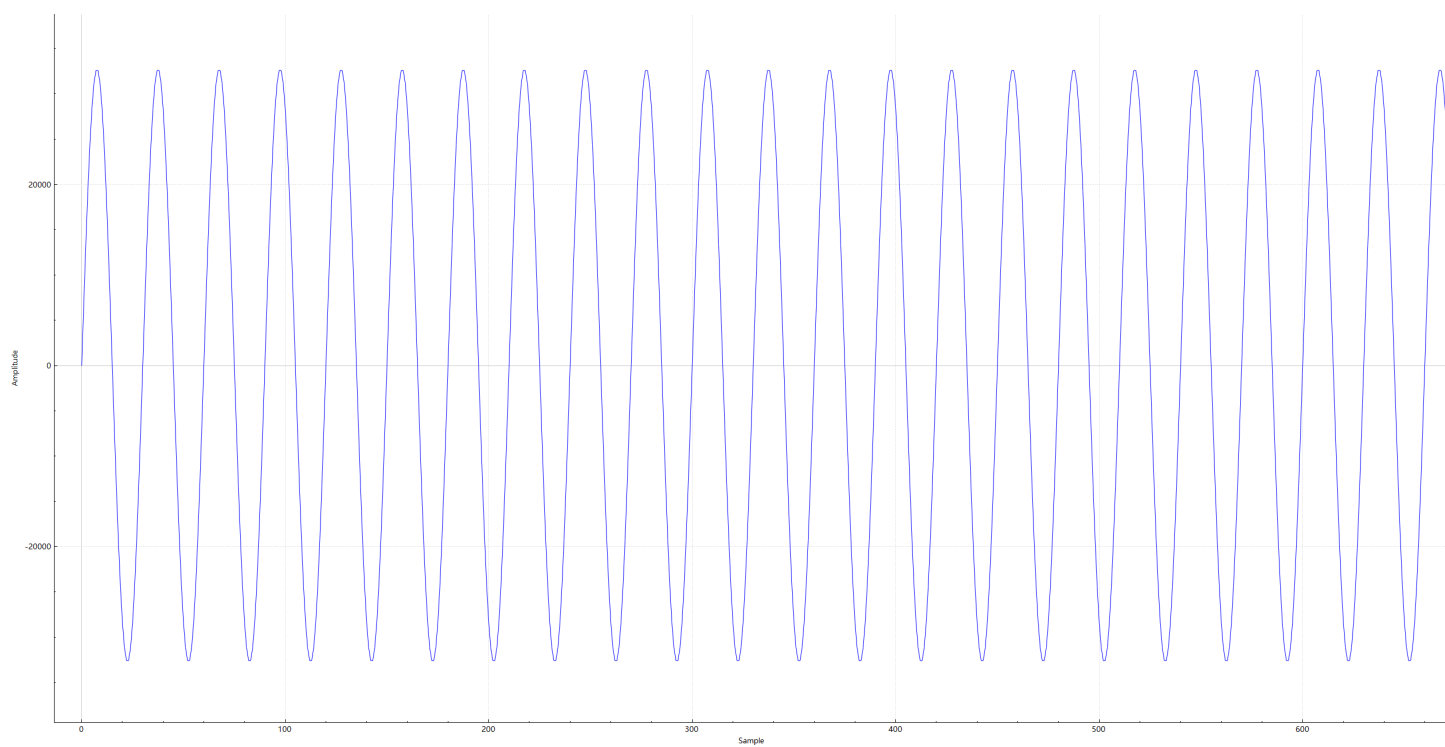
180度扫相测试



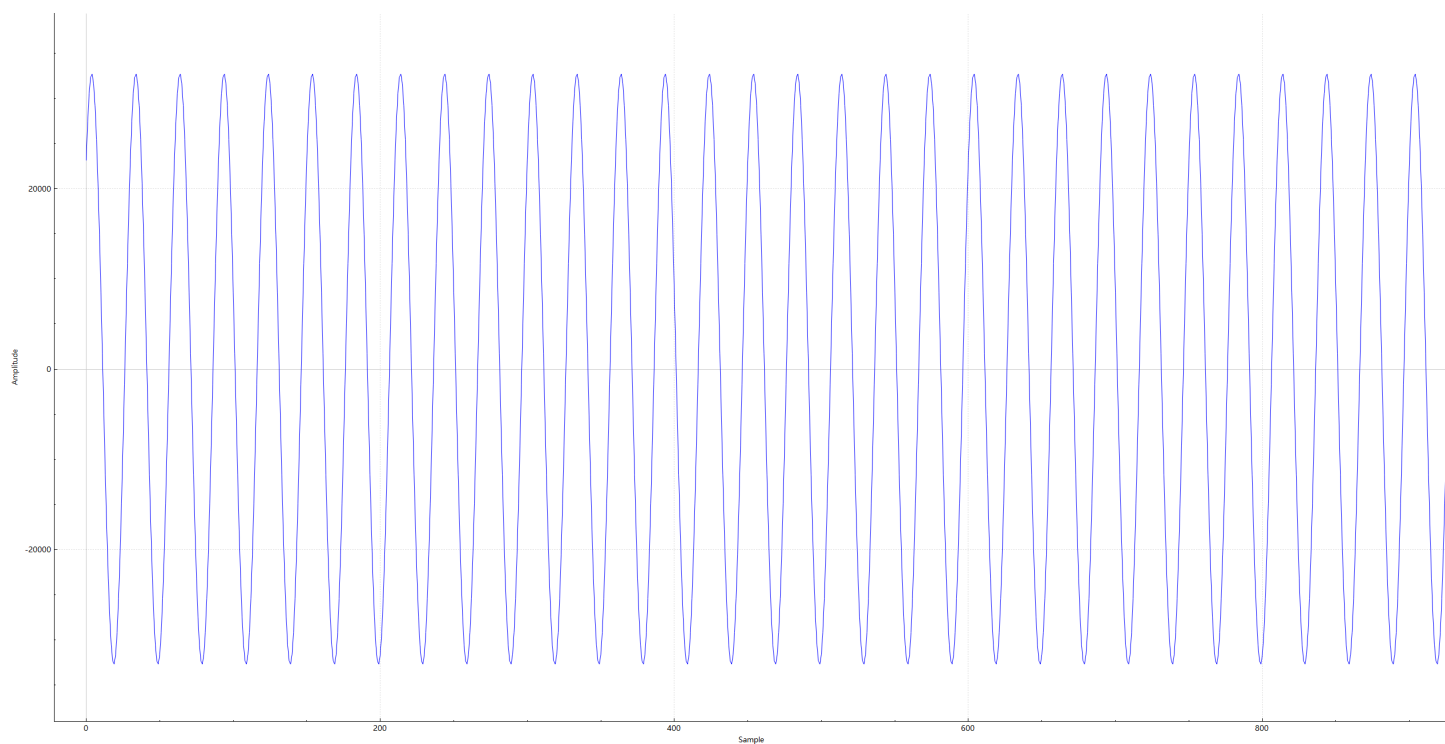
225度扫相测试



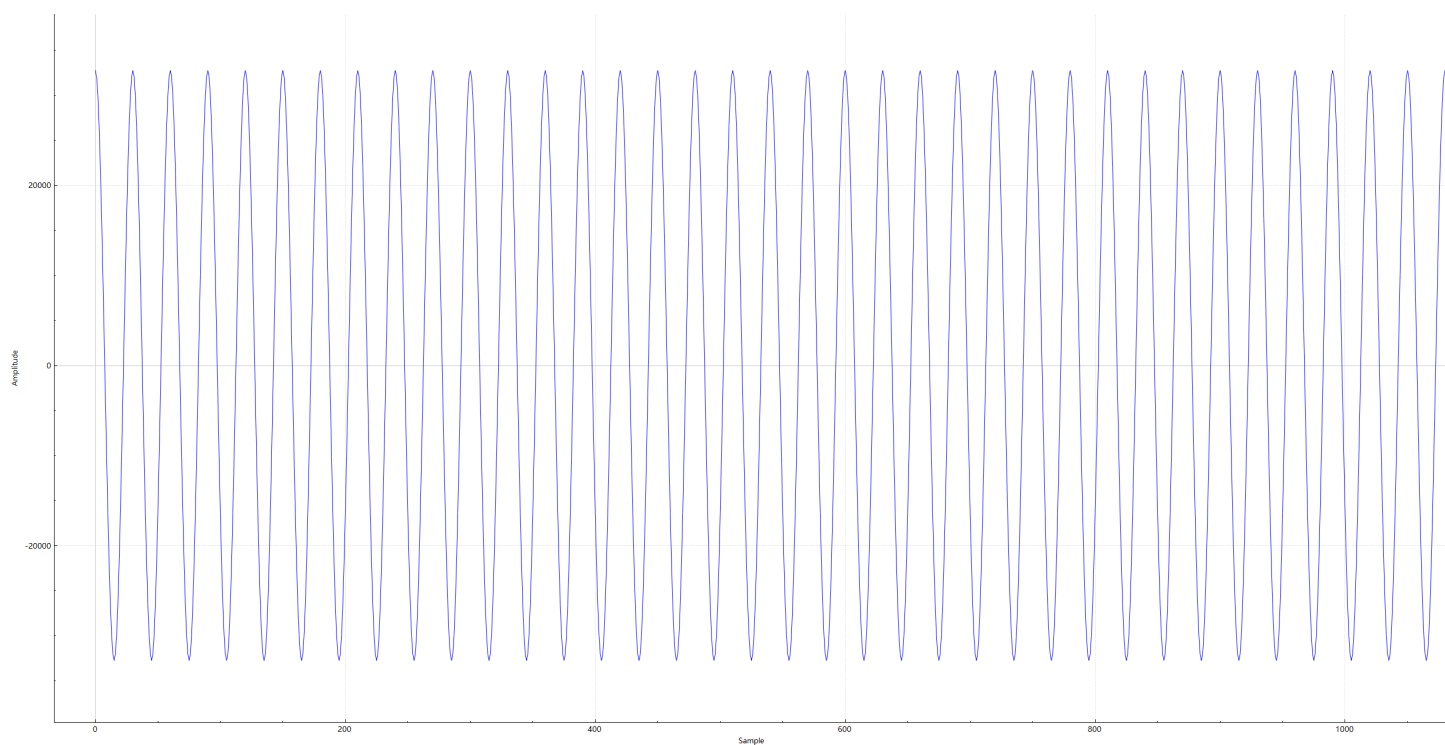
270度扫相测试



315度扫相测试



360度扫相测试

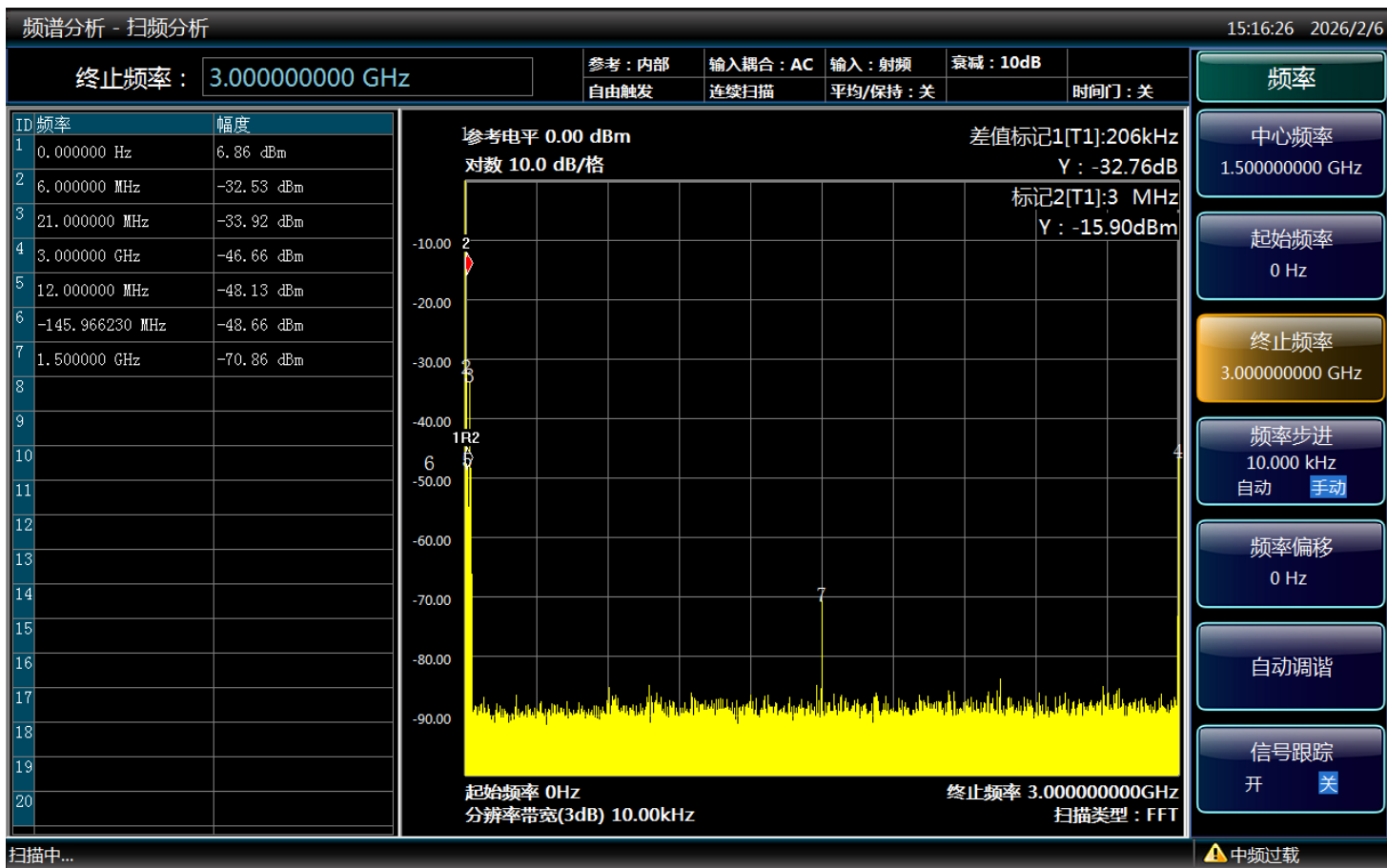


双音NCO

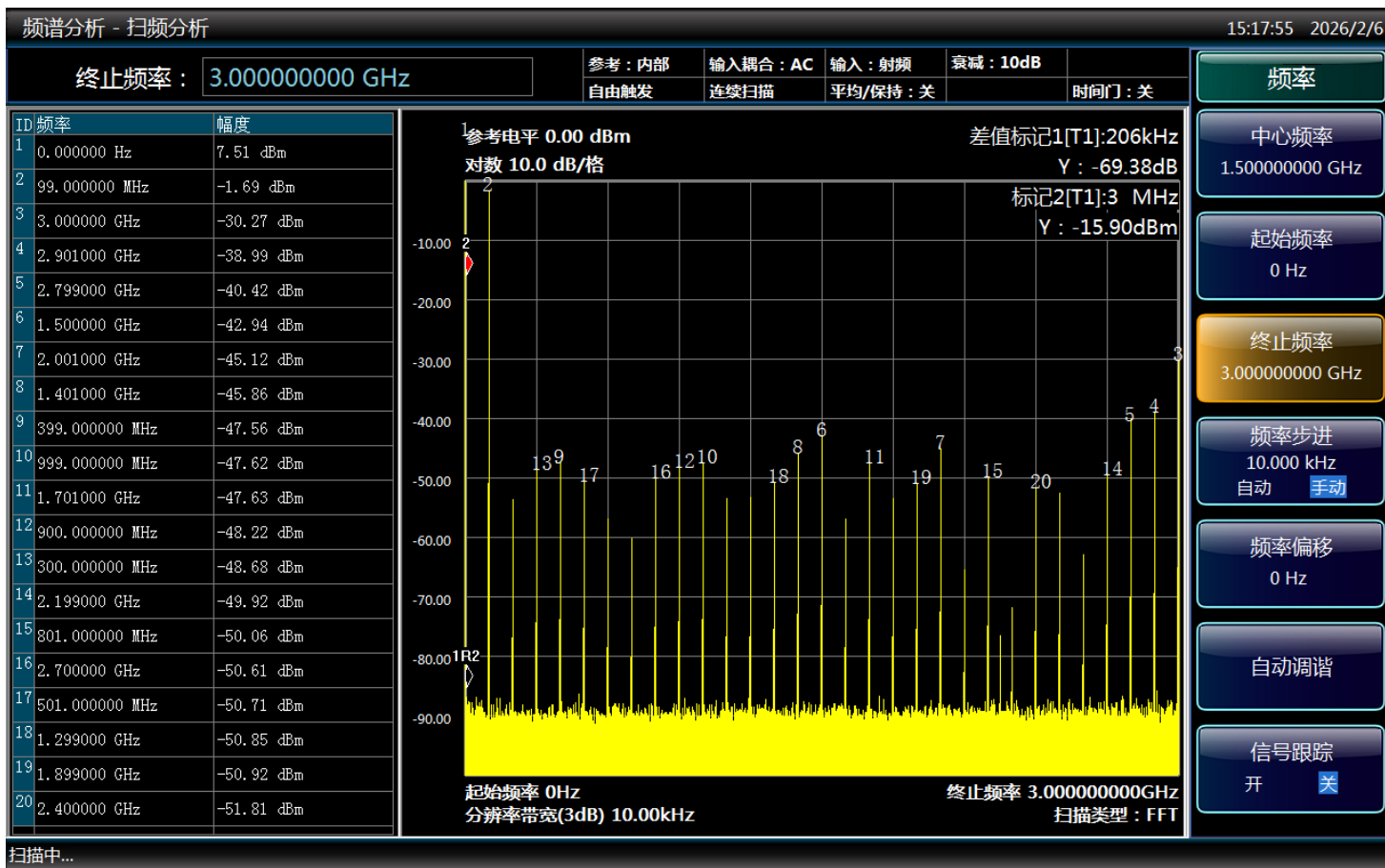
扫频

双音NCO扫频测试覆盖了从1MHz到750MHz的频率范围。

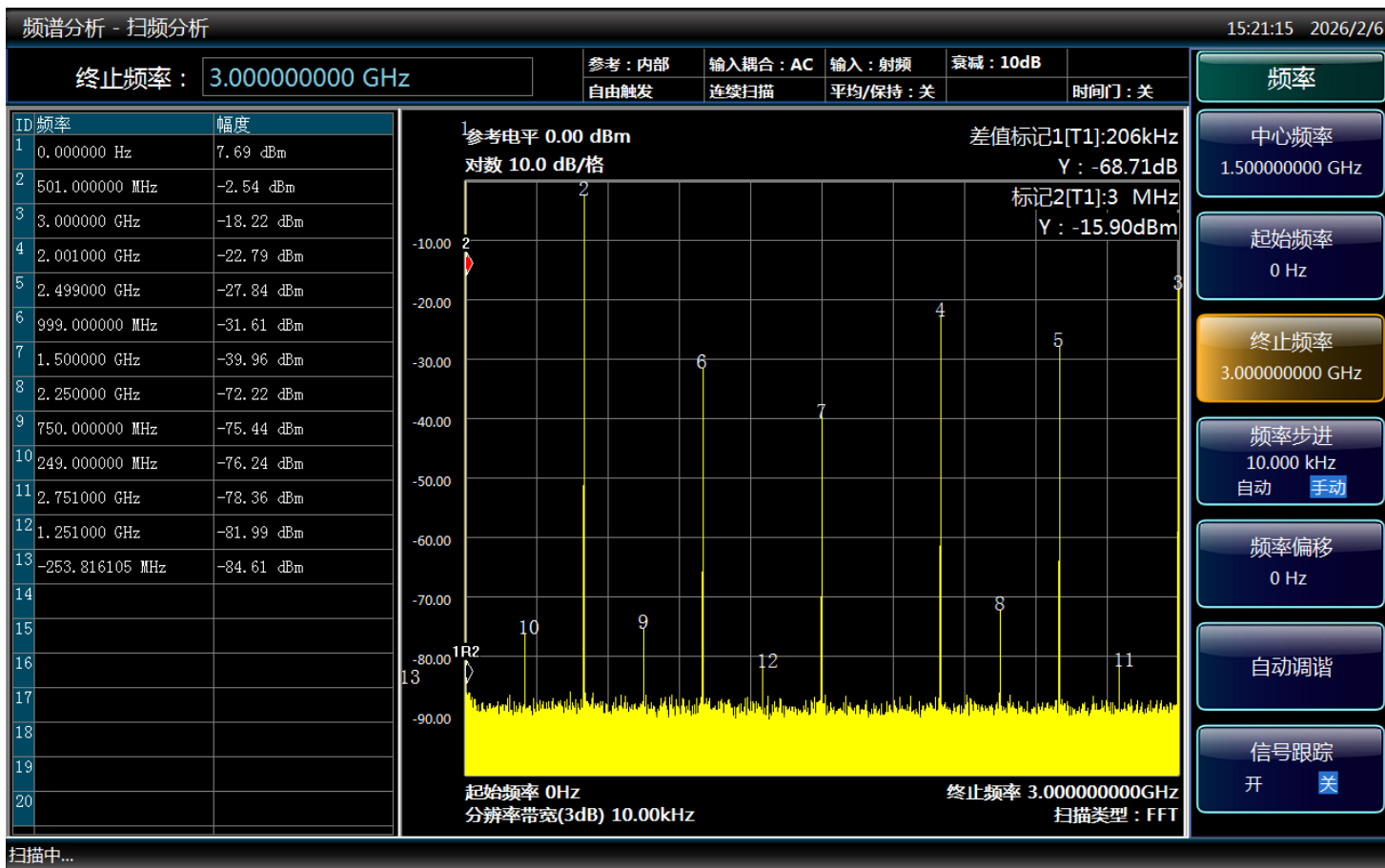
1MHz扫频测试



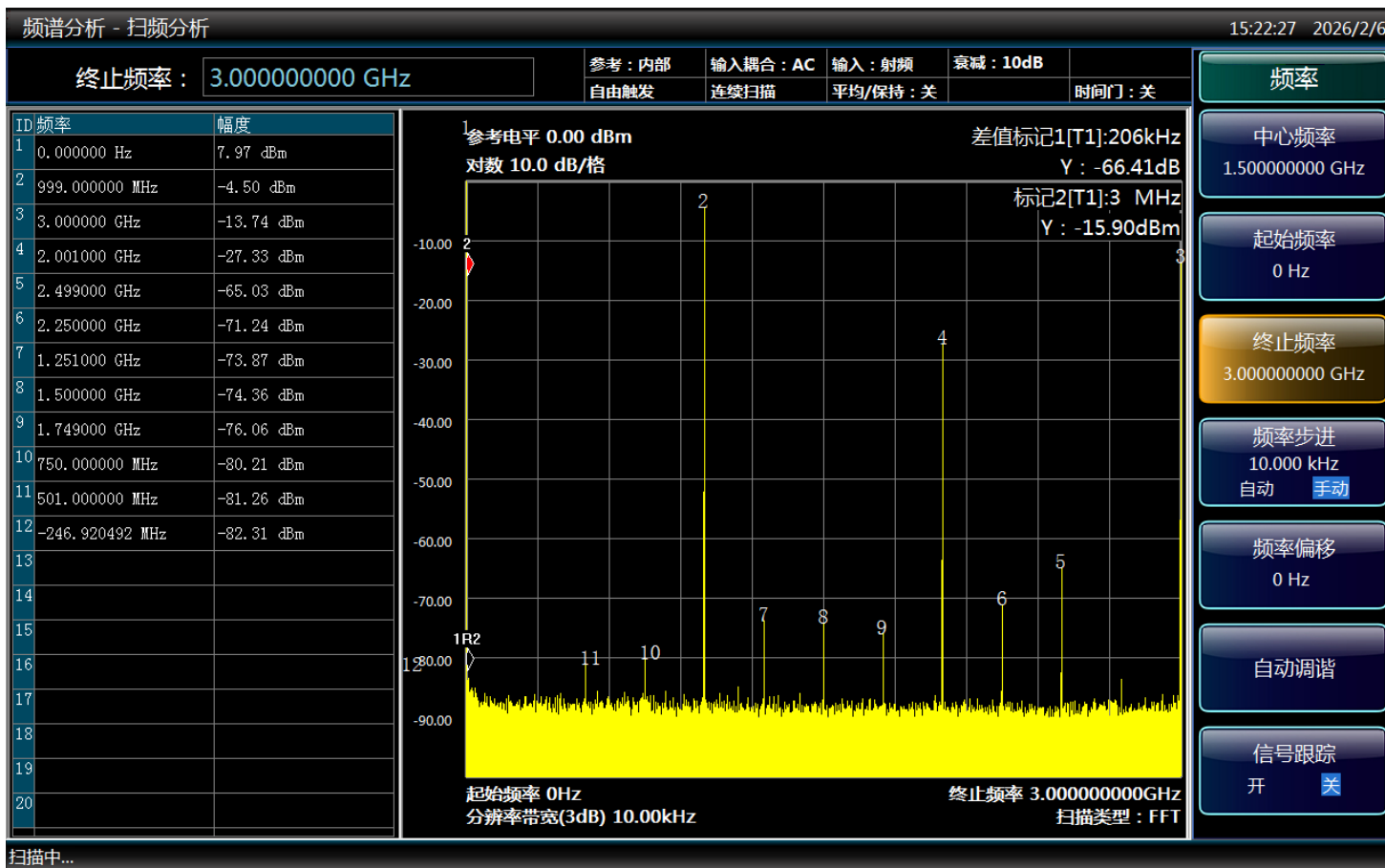
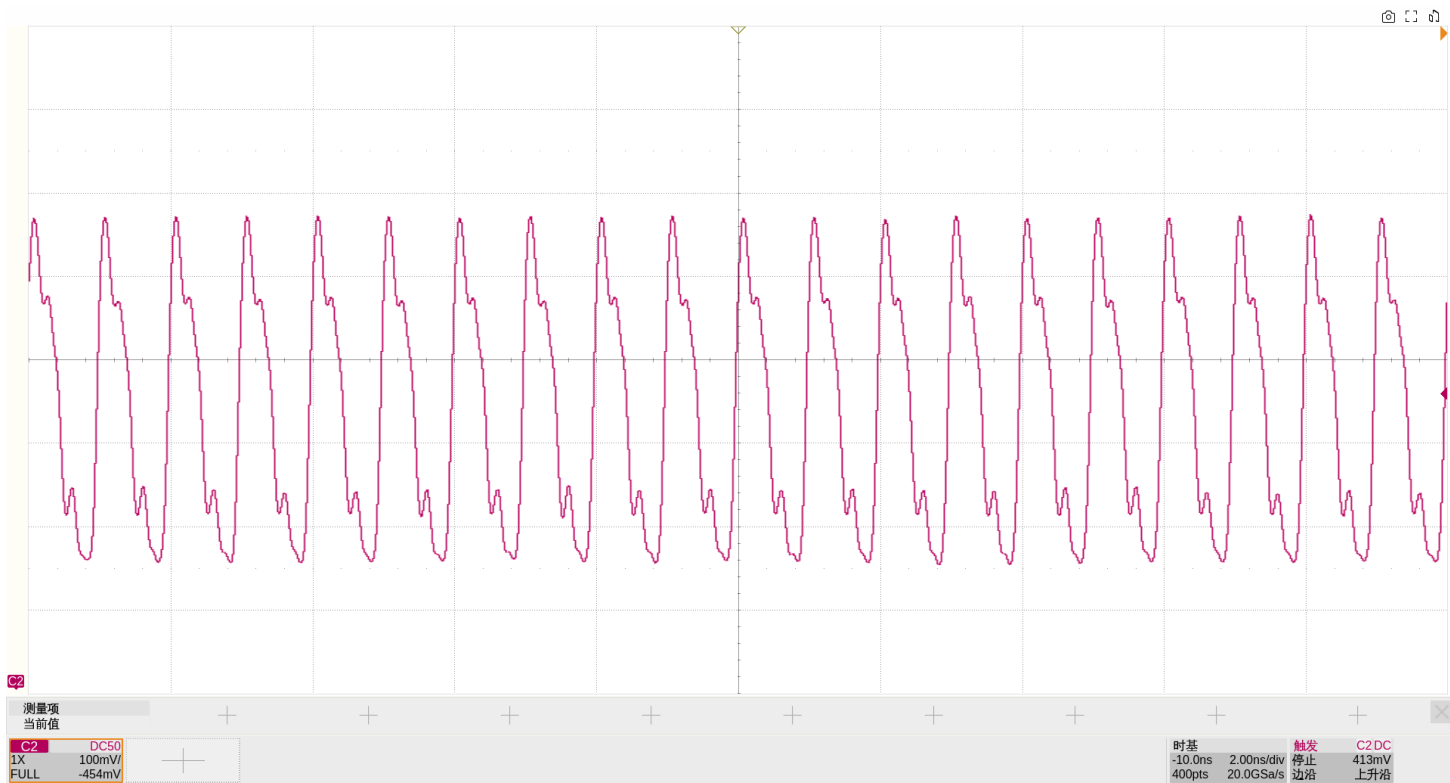
100MHz扫频测试



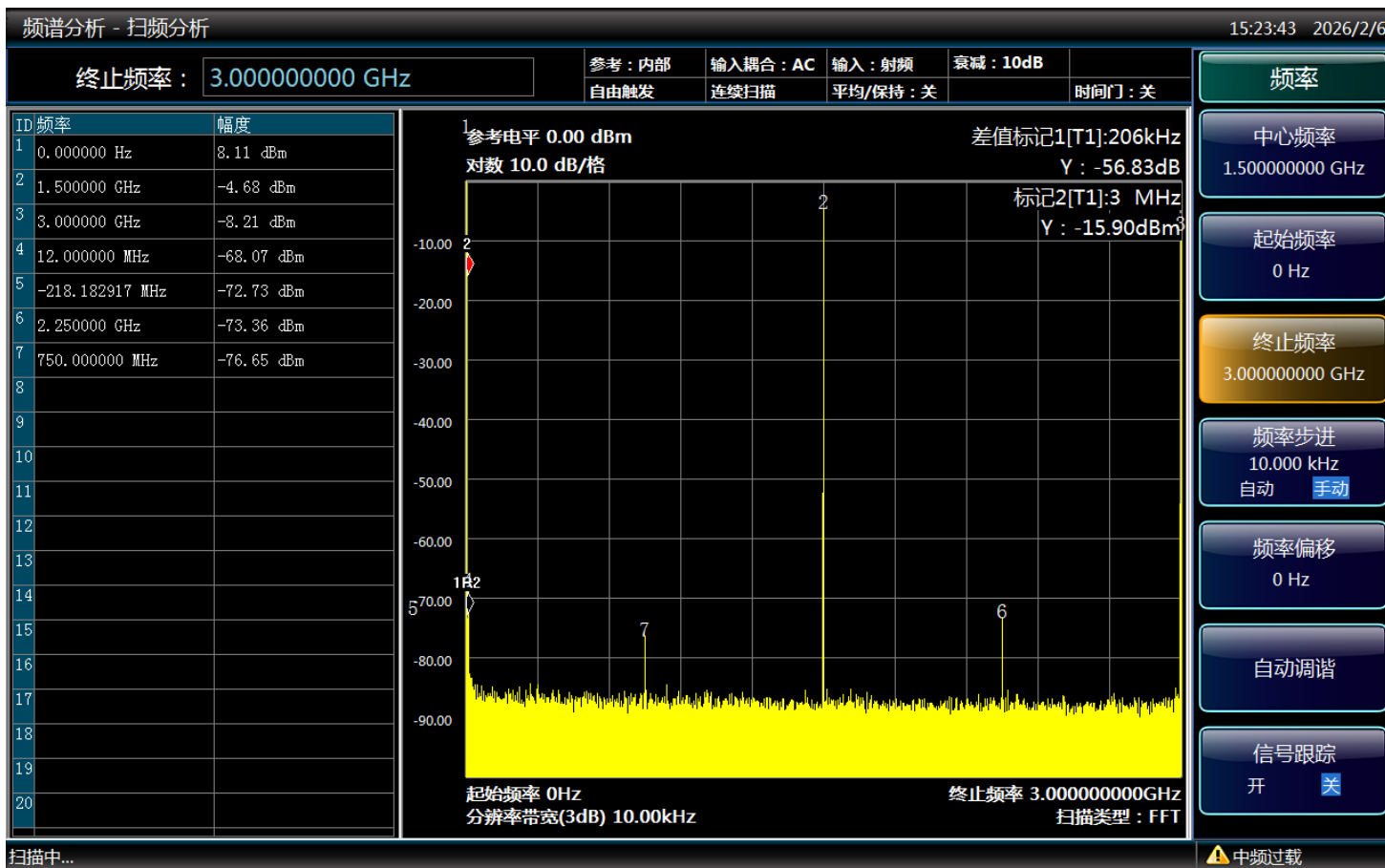
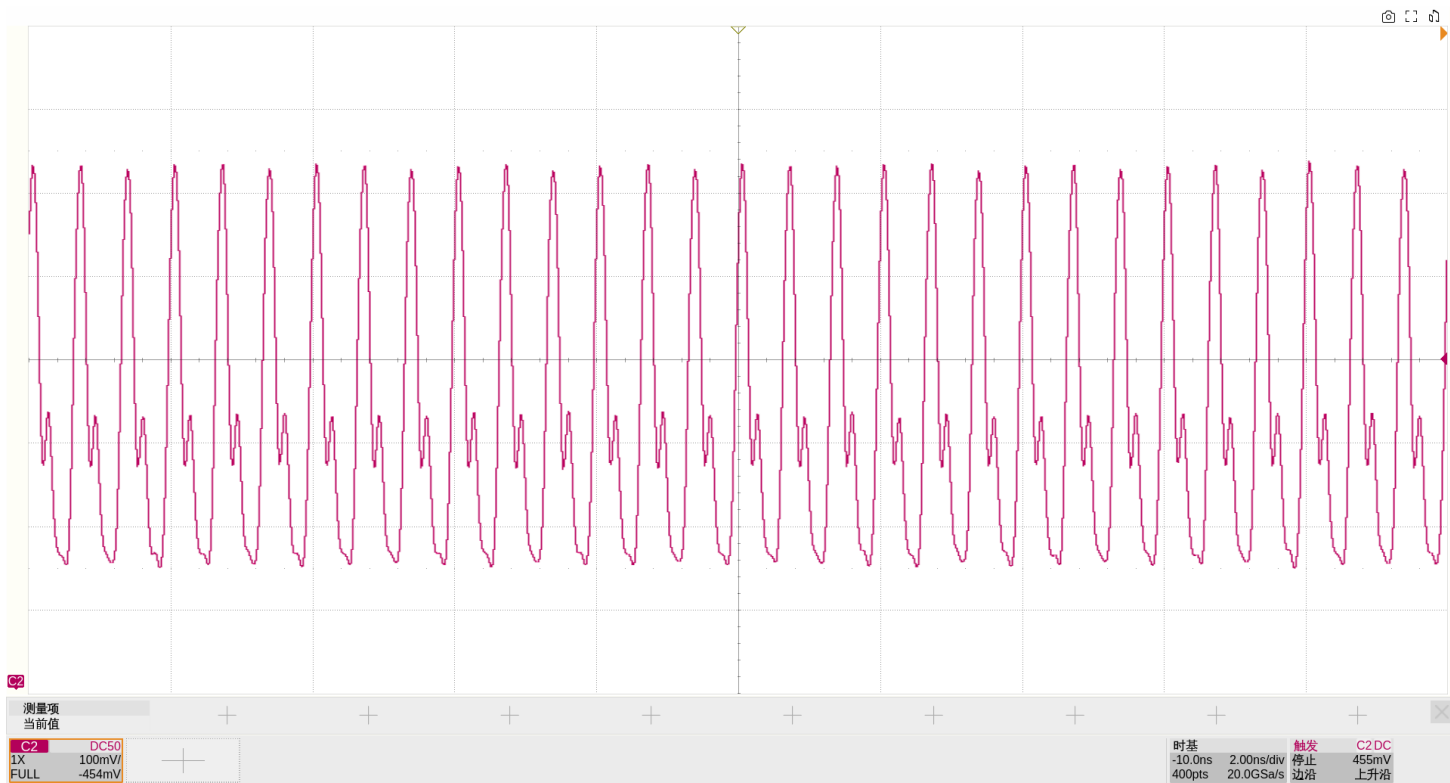
250MHz扫频测试



500MHz扫频测试

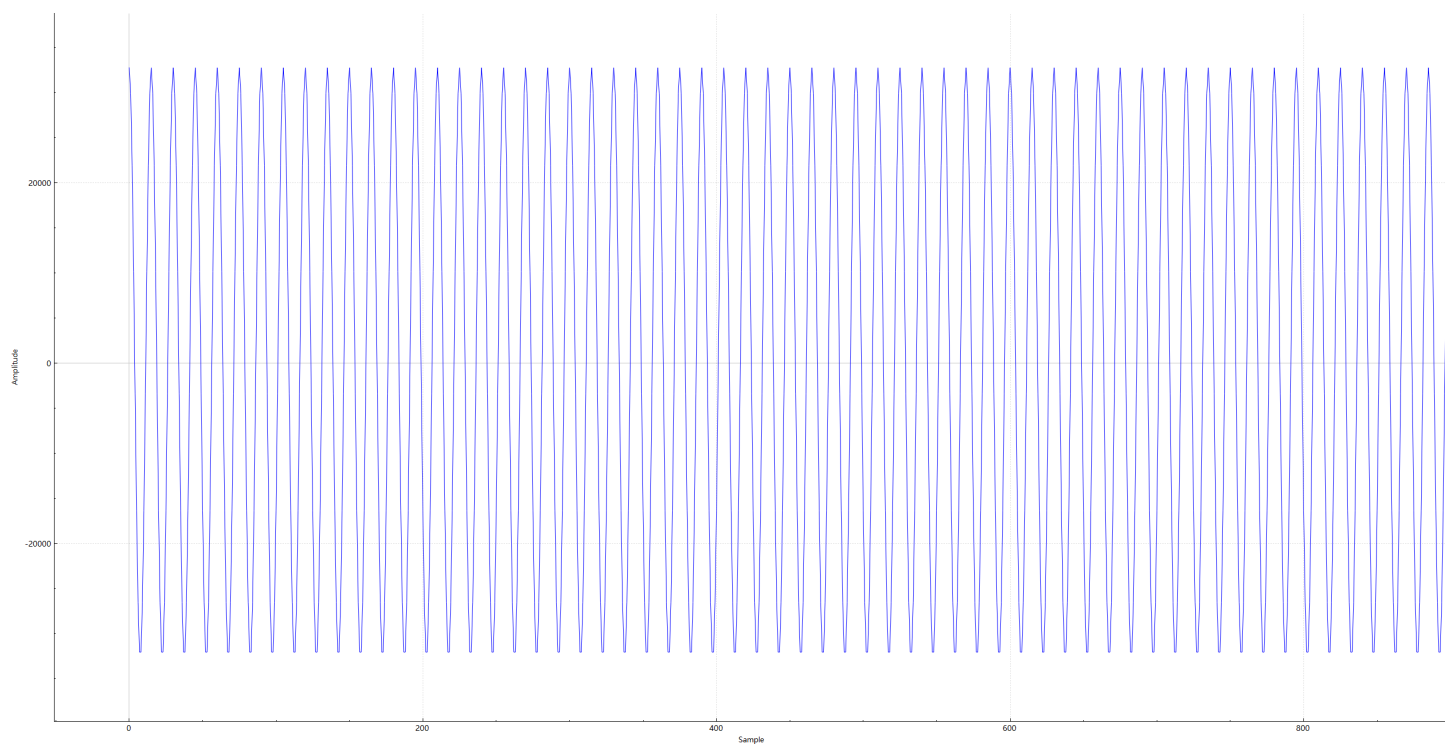


750MHz扫频测试

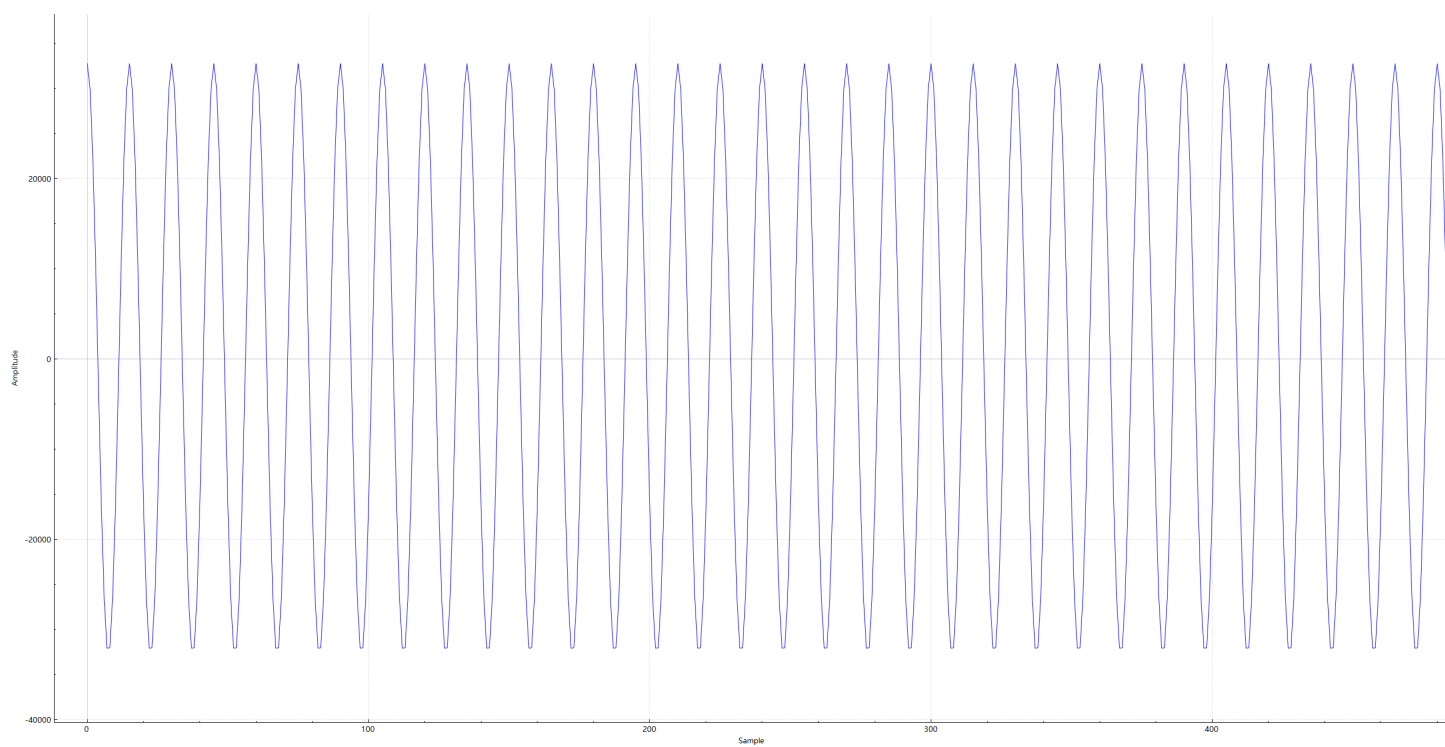


载波扫相

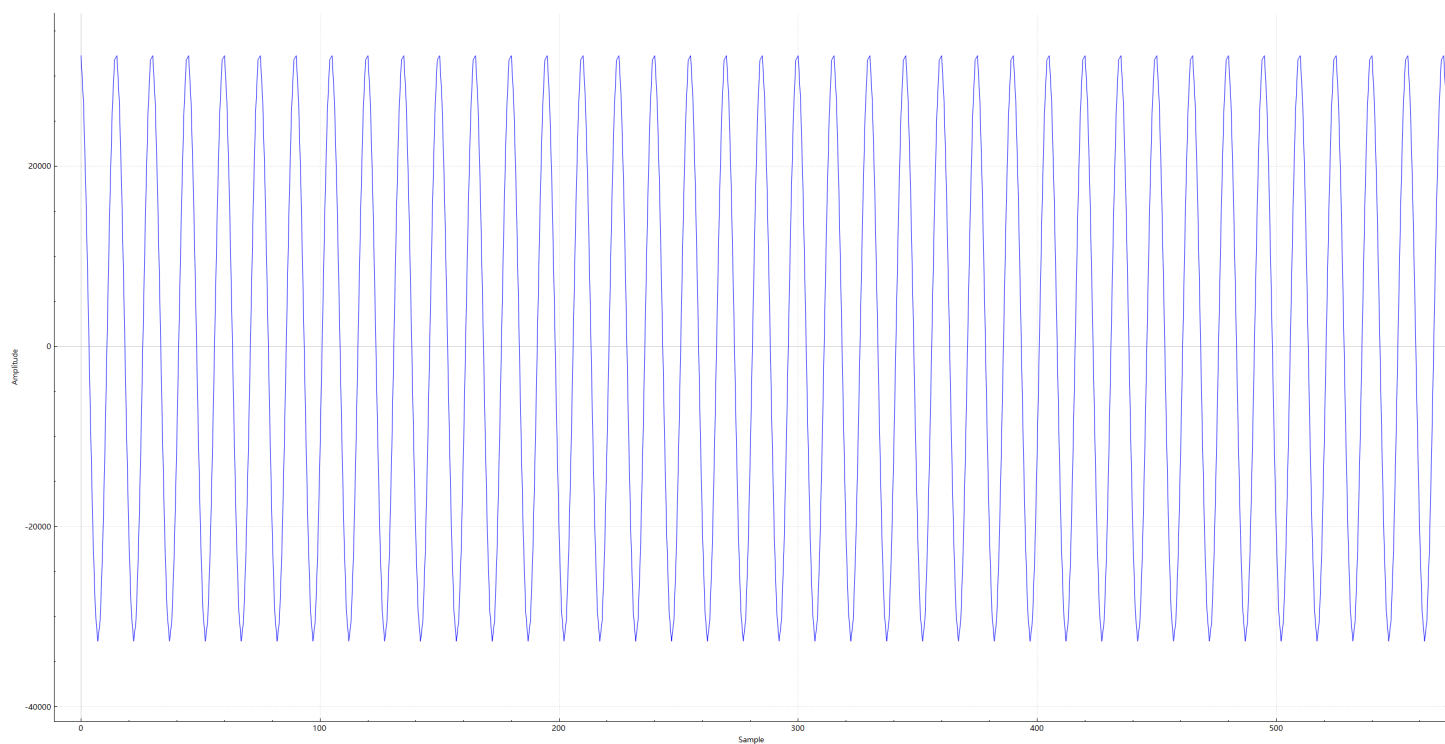
0度扫相测试



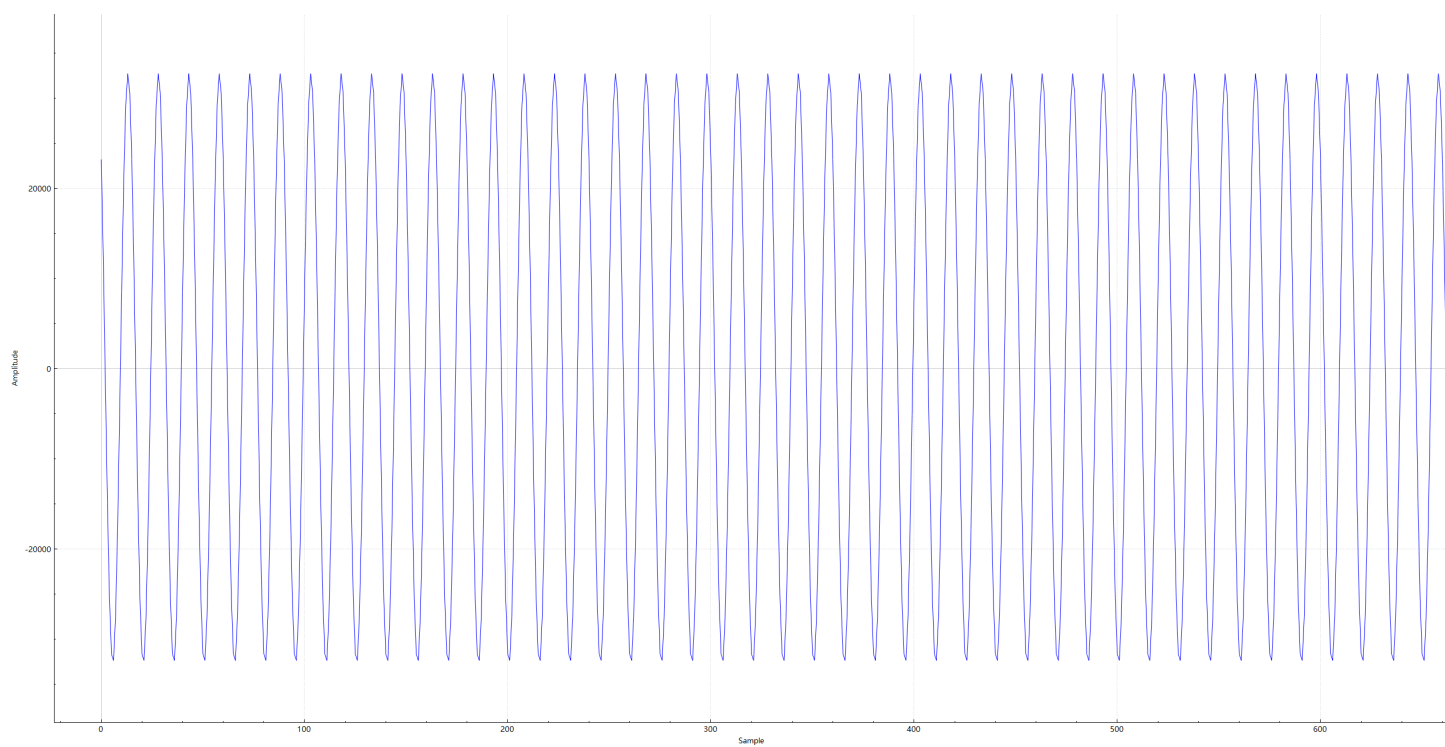
0.05度扫相测试



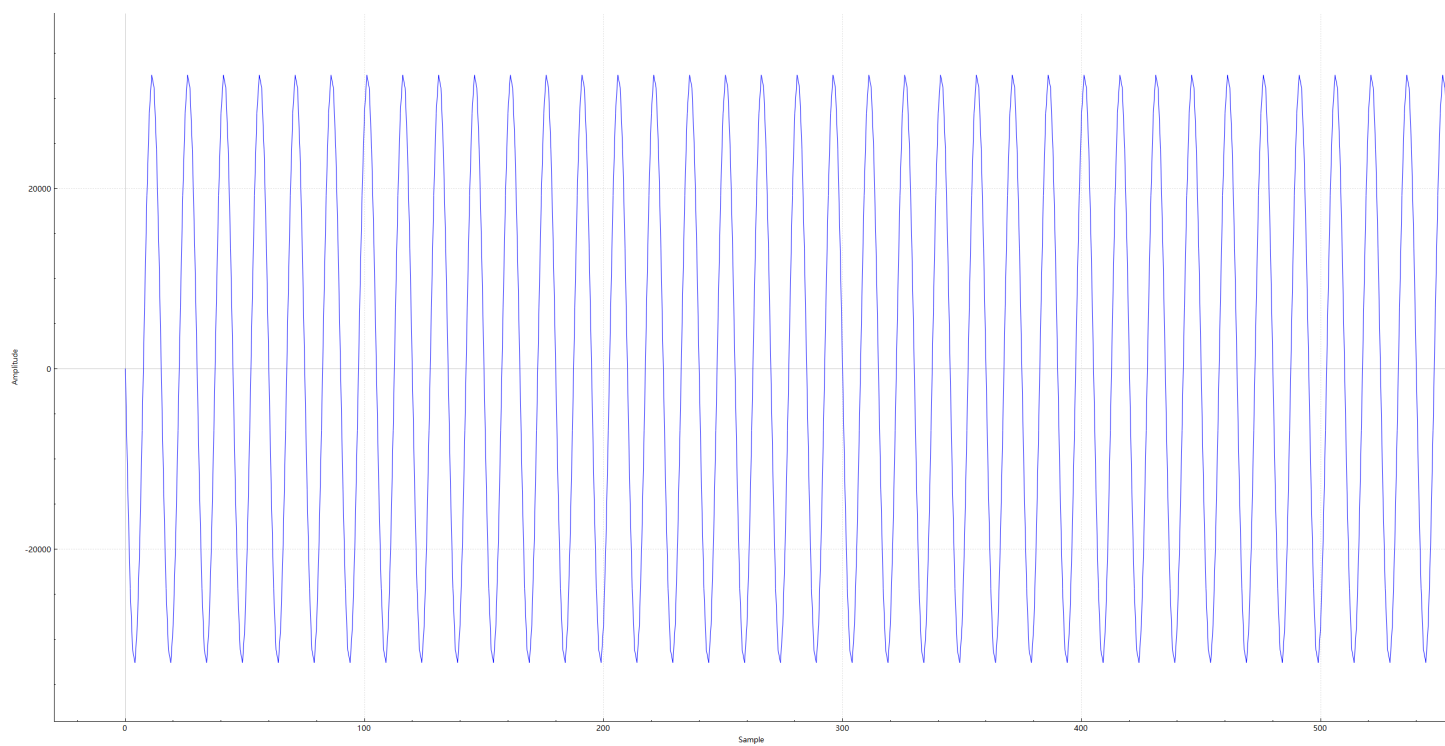
5度扫相测试



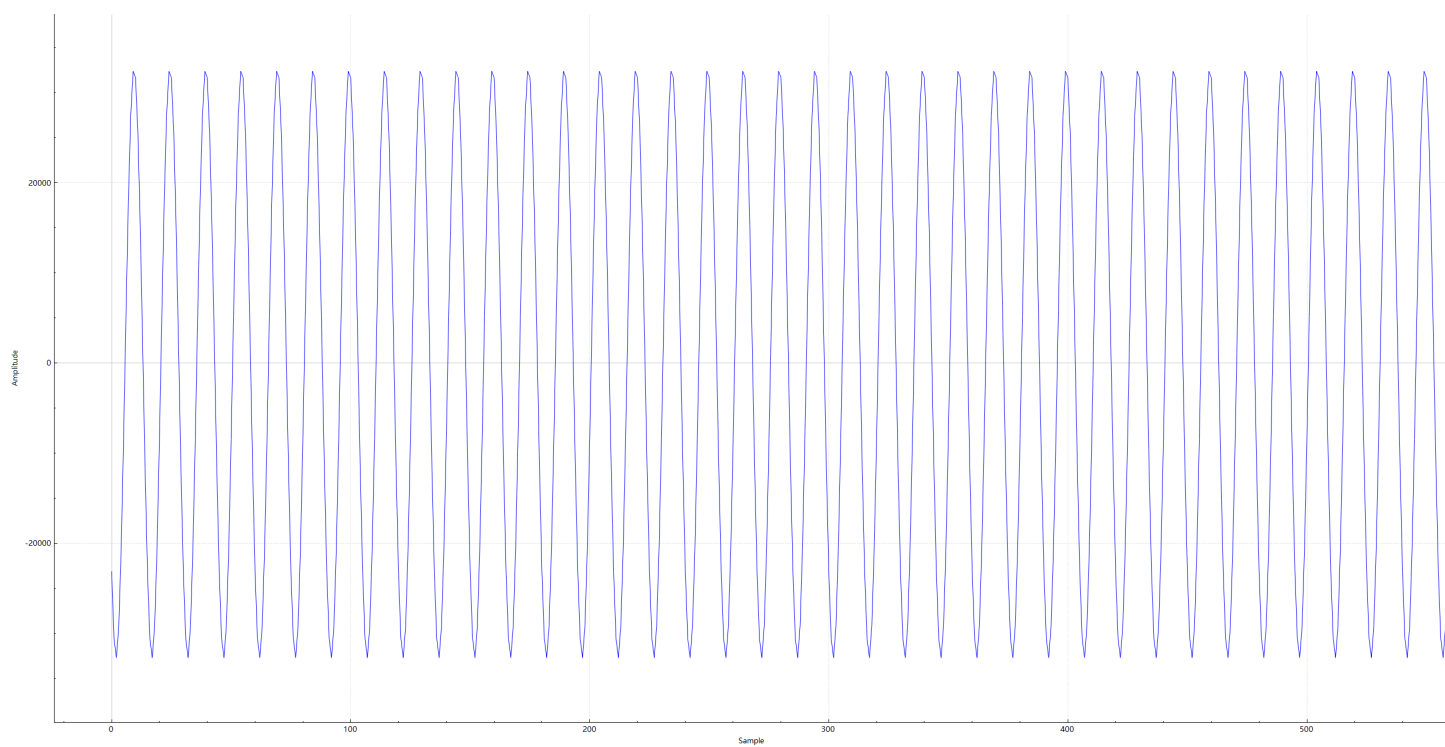
22.5度扫相测试



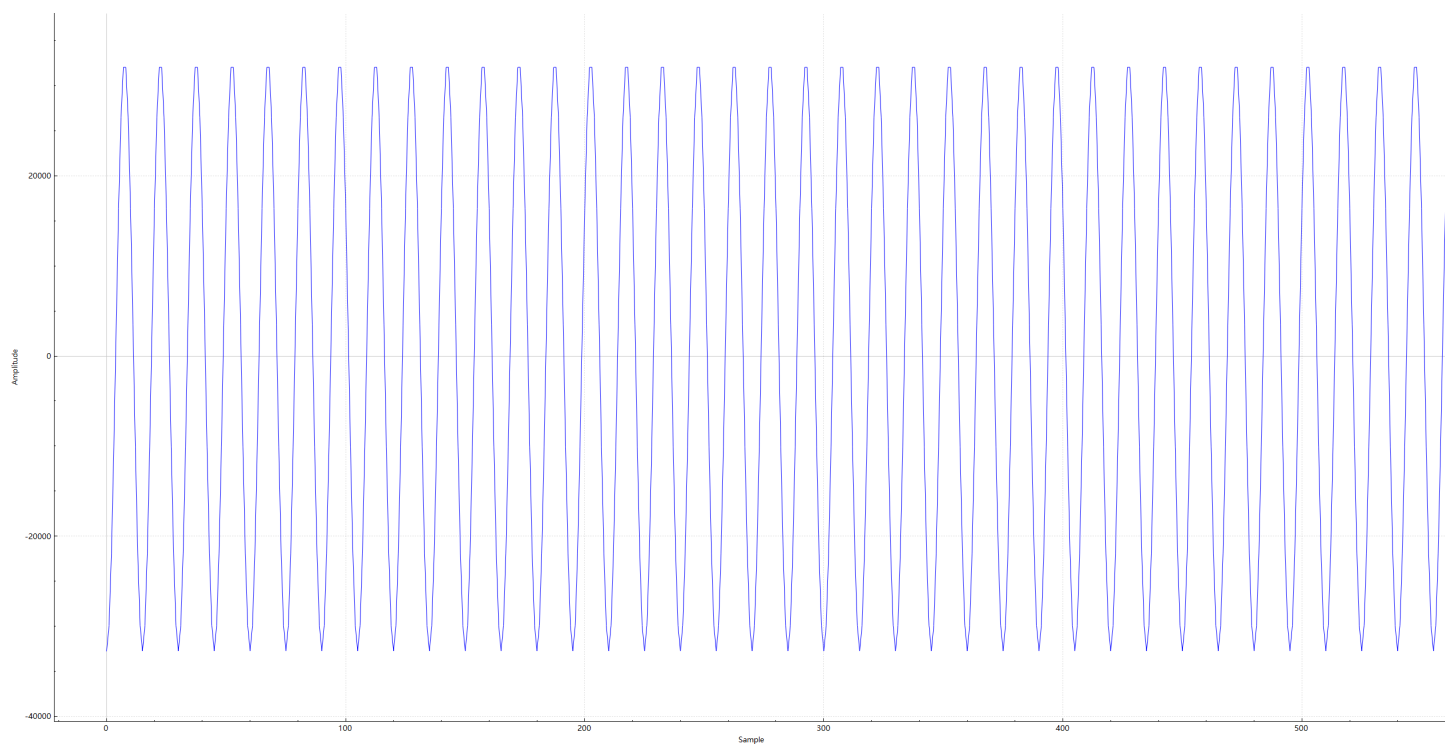
45度扫相测试



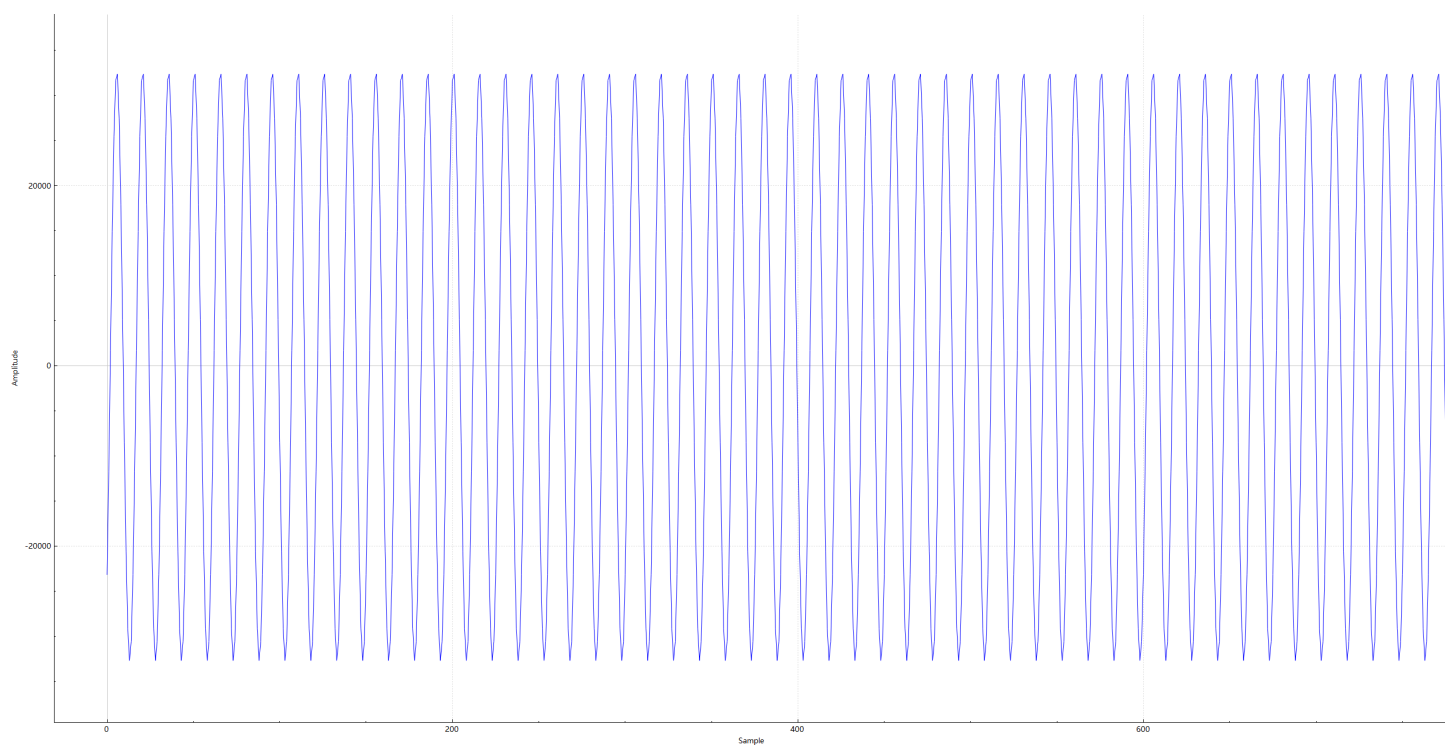
67.5度扫相测试



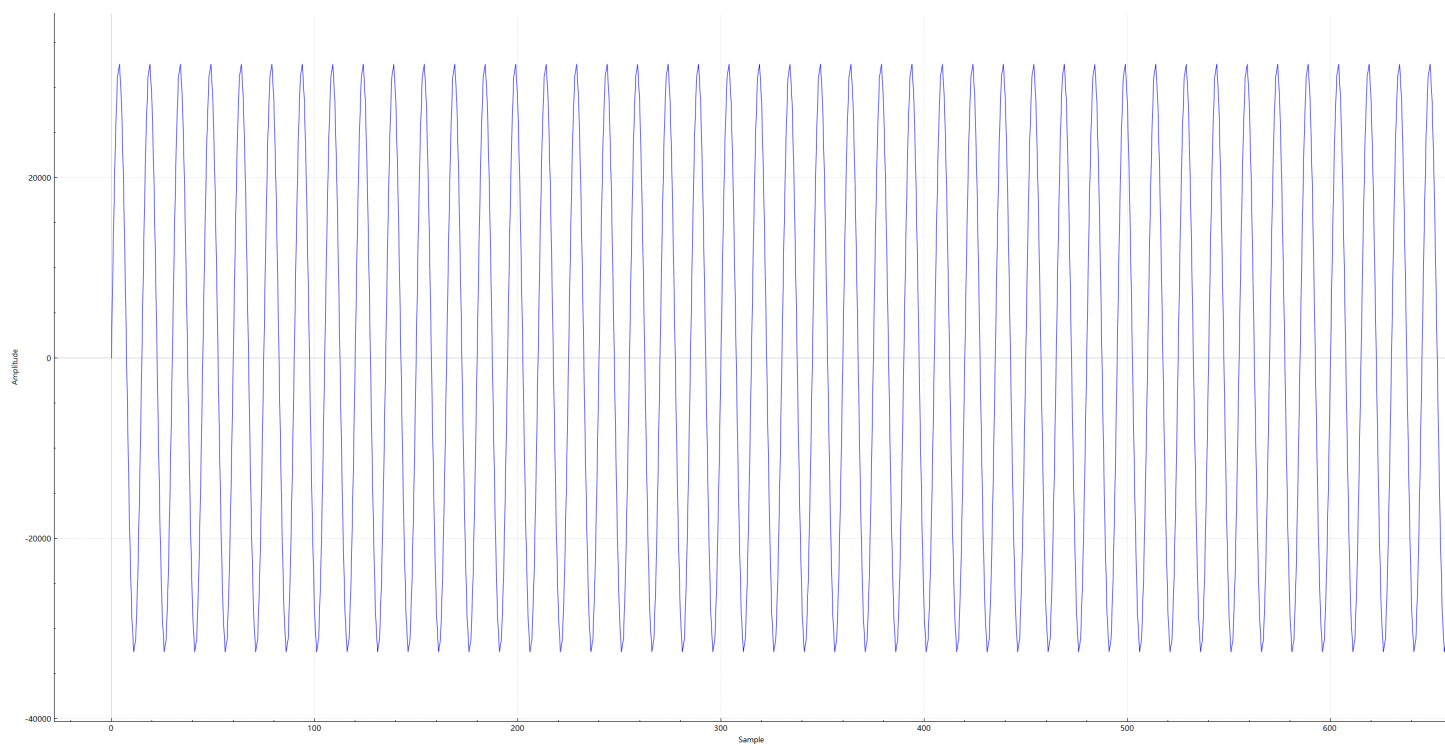
90度扫相测试



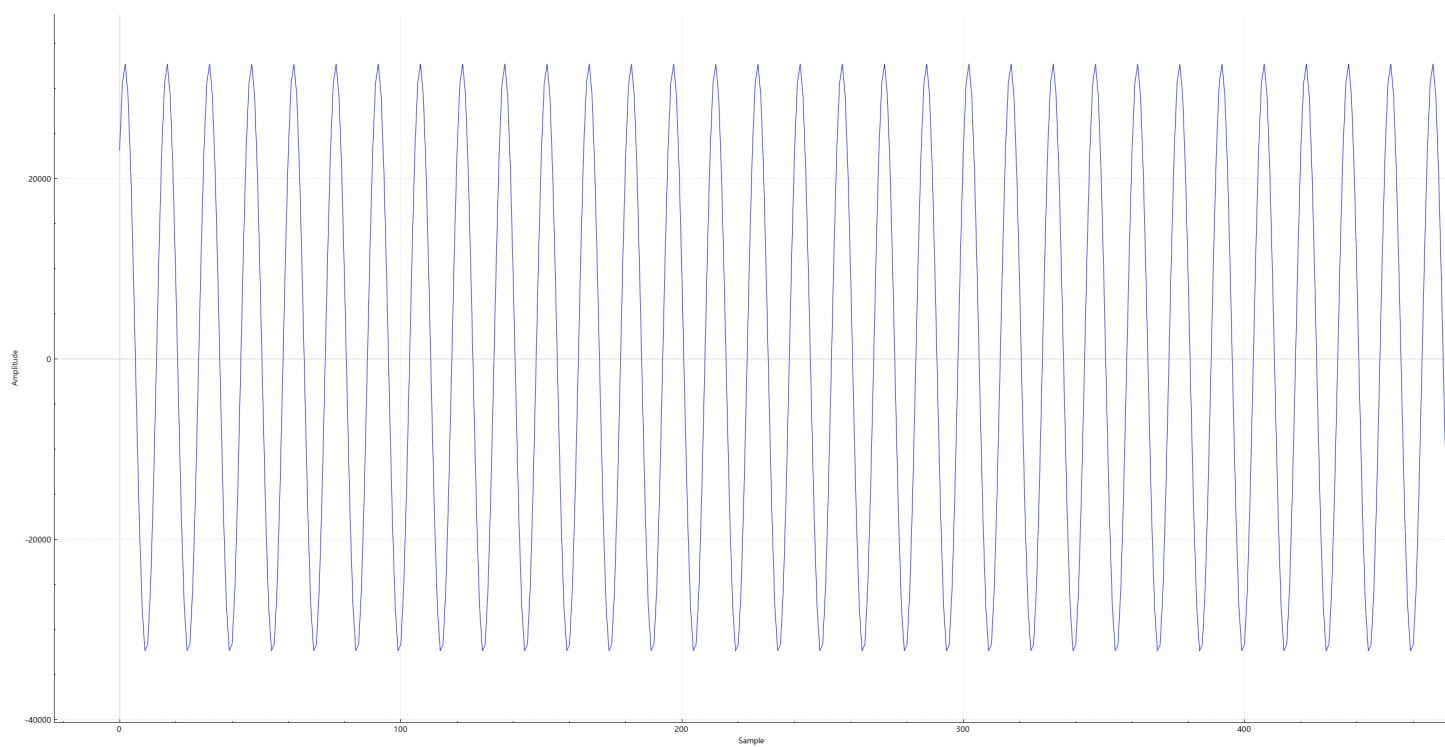
112. 5度扫相测试



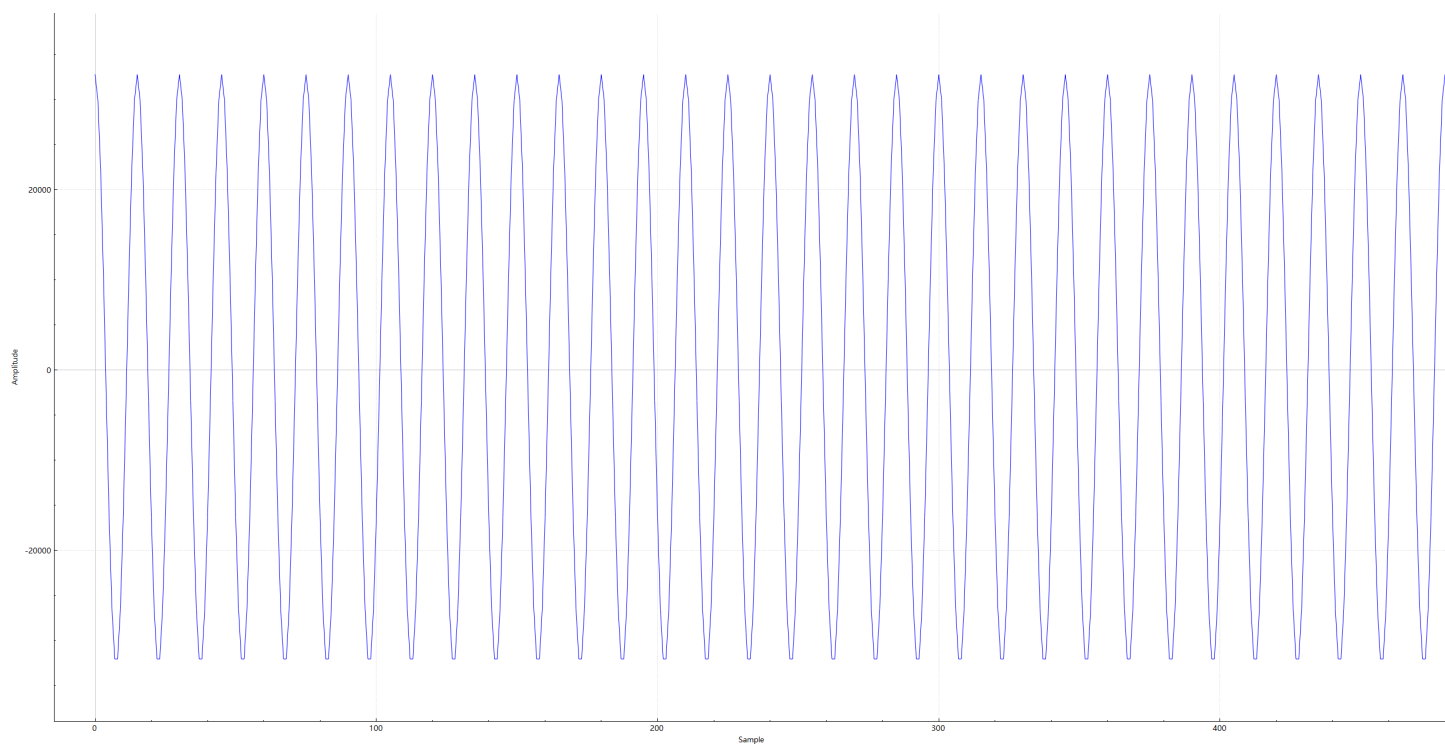
135度扫相测试



157.5度扫相测试

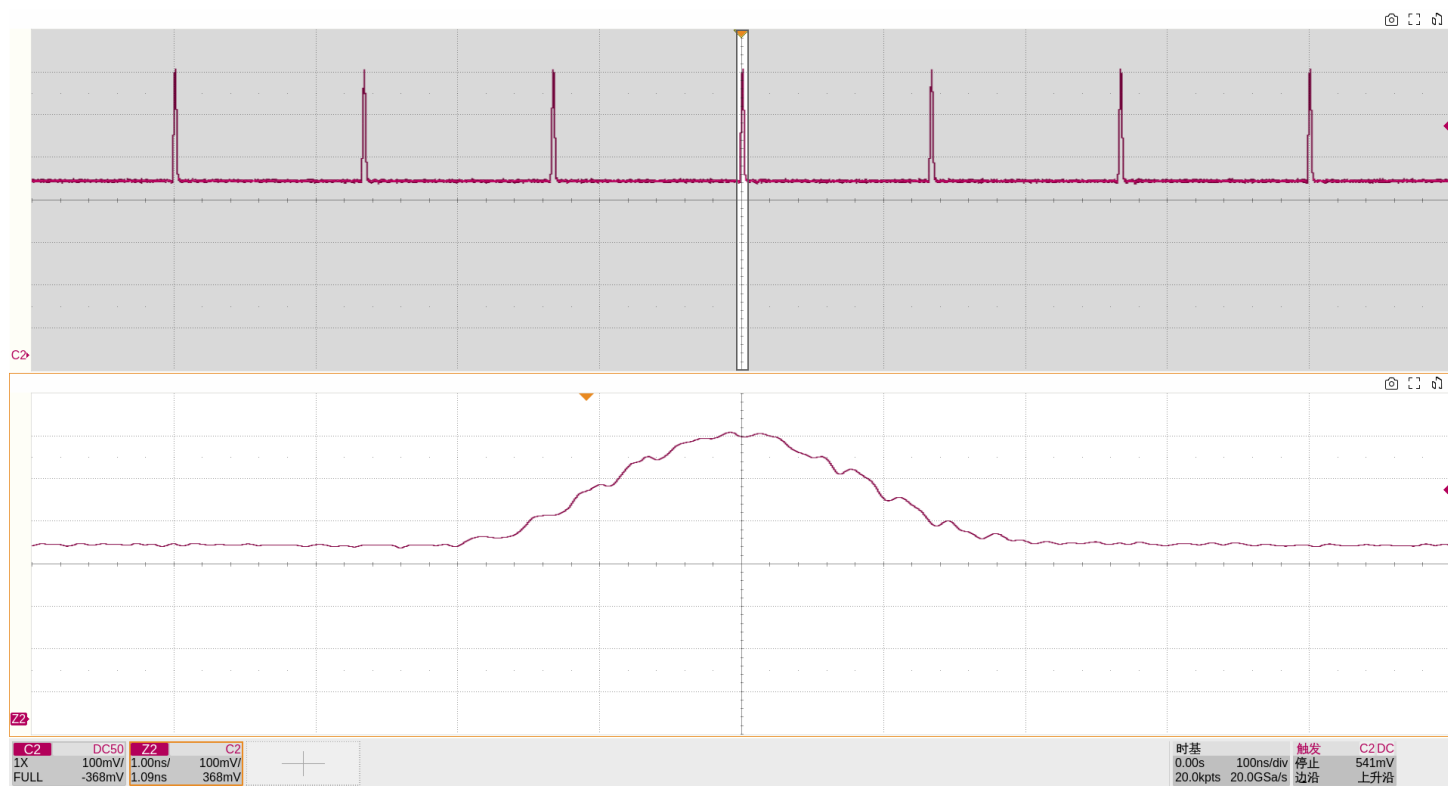


180度扫相测试



AWG包络直出

Cosine包络12点



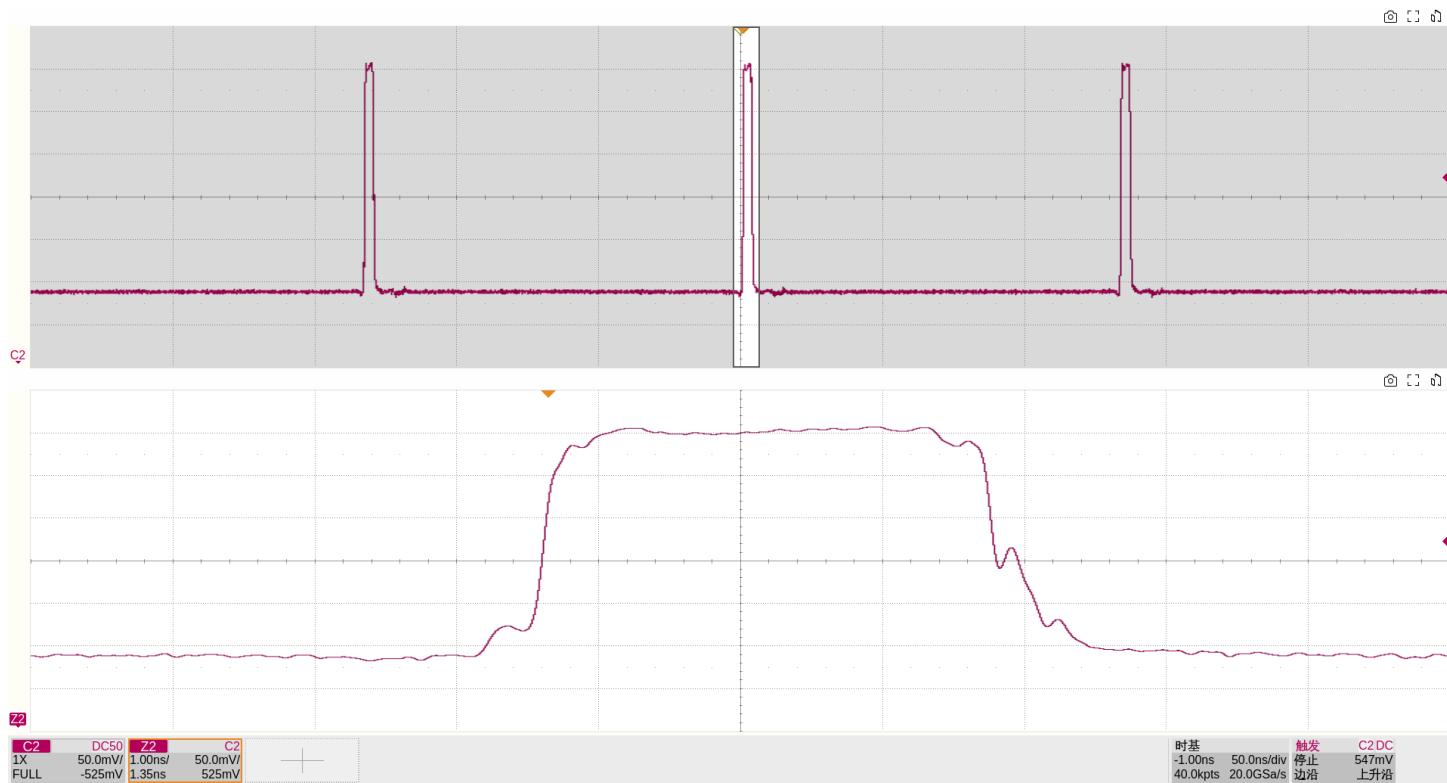
Cosine包络100点



Cosine包络1000点



Flat top包络12点



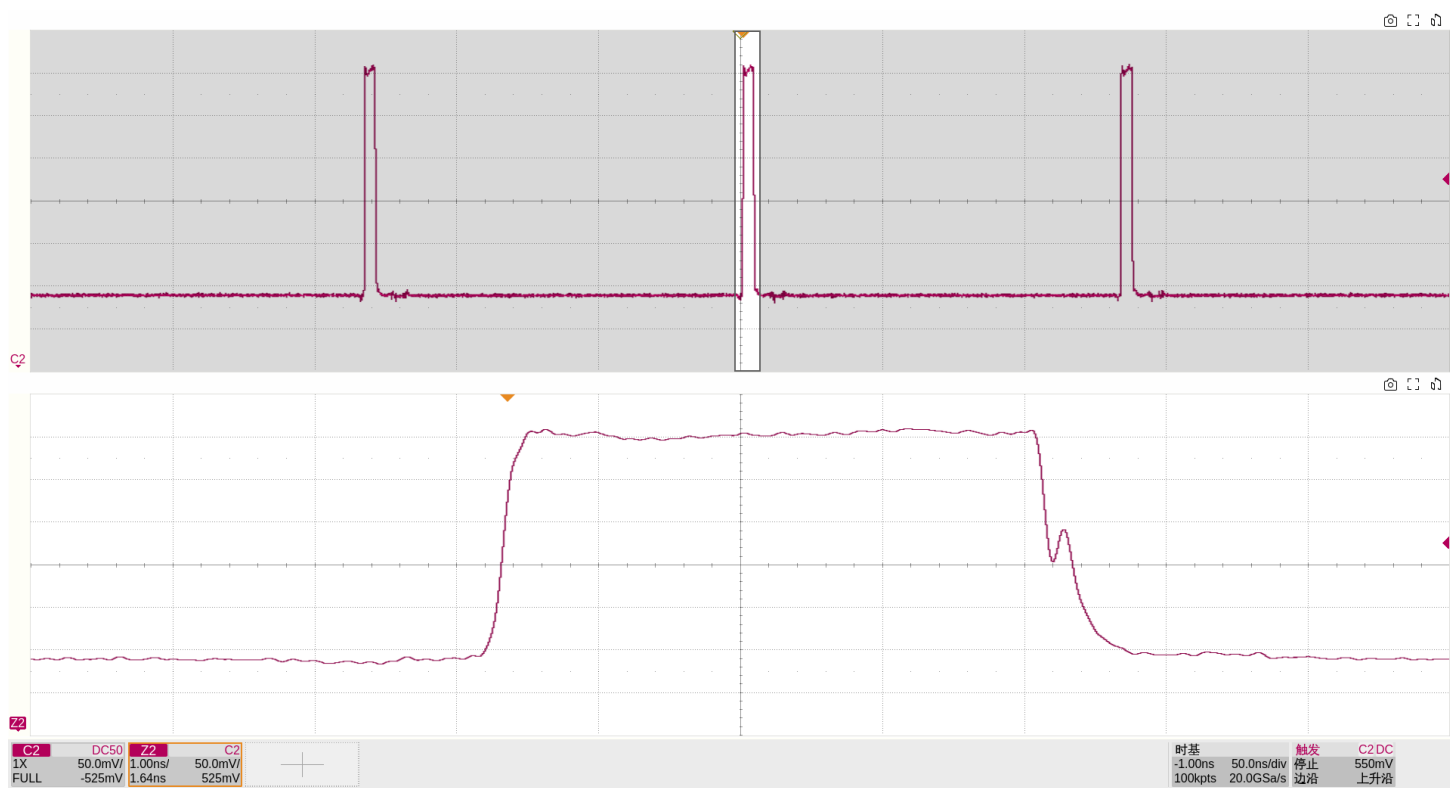
Flattop包络100点



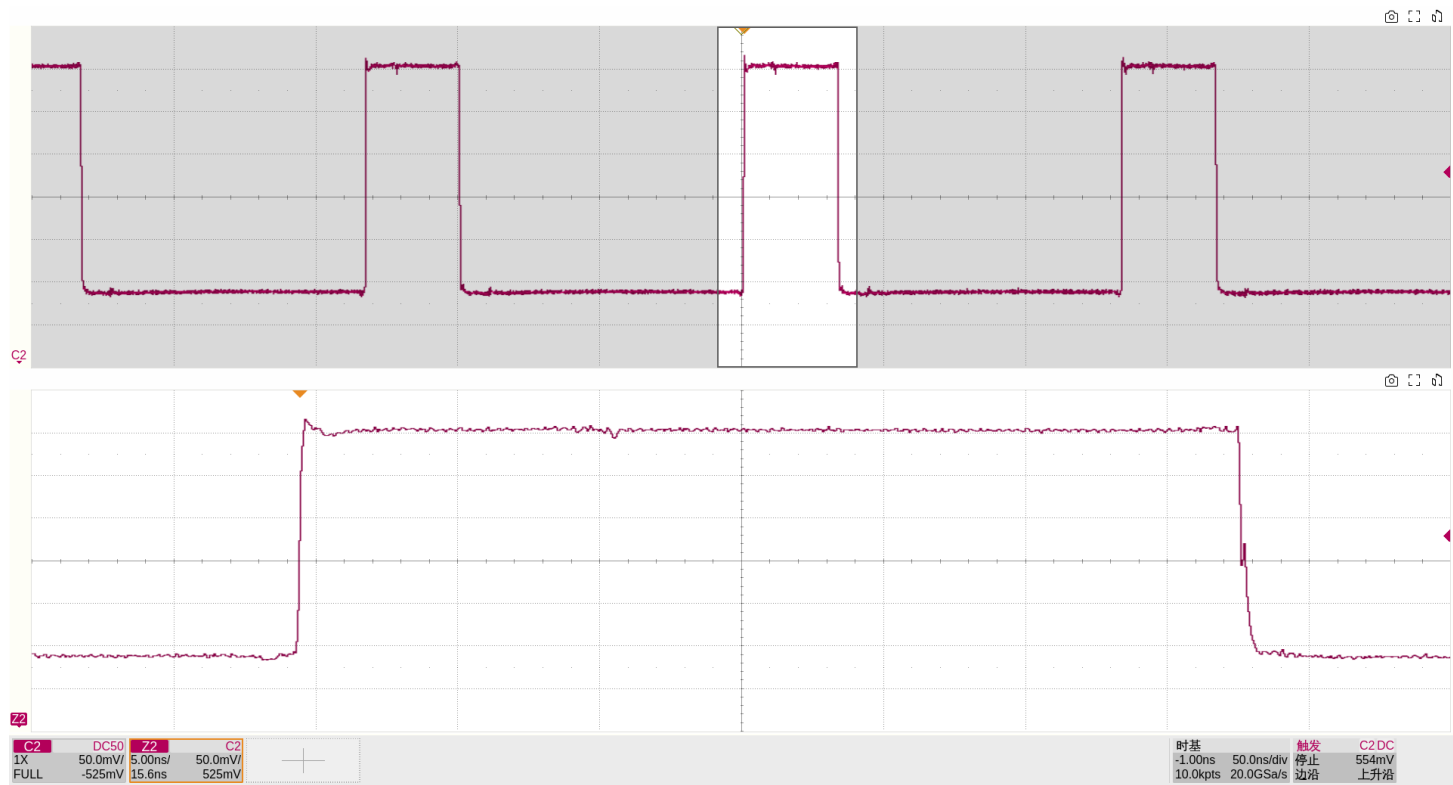
Flattop包络1000点



Rect包络12点



Rect包络100点



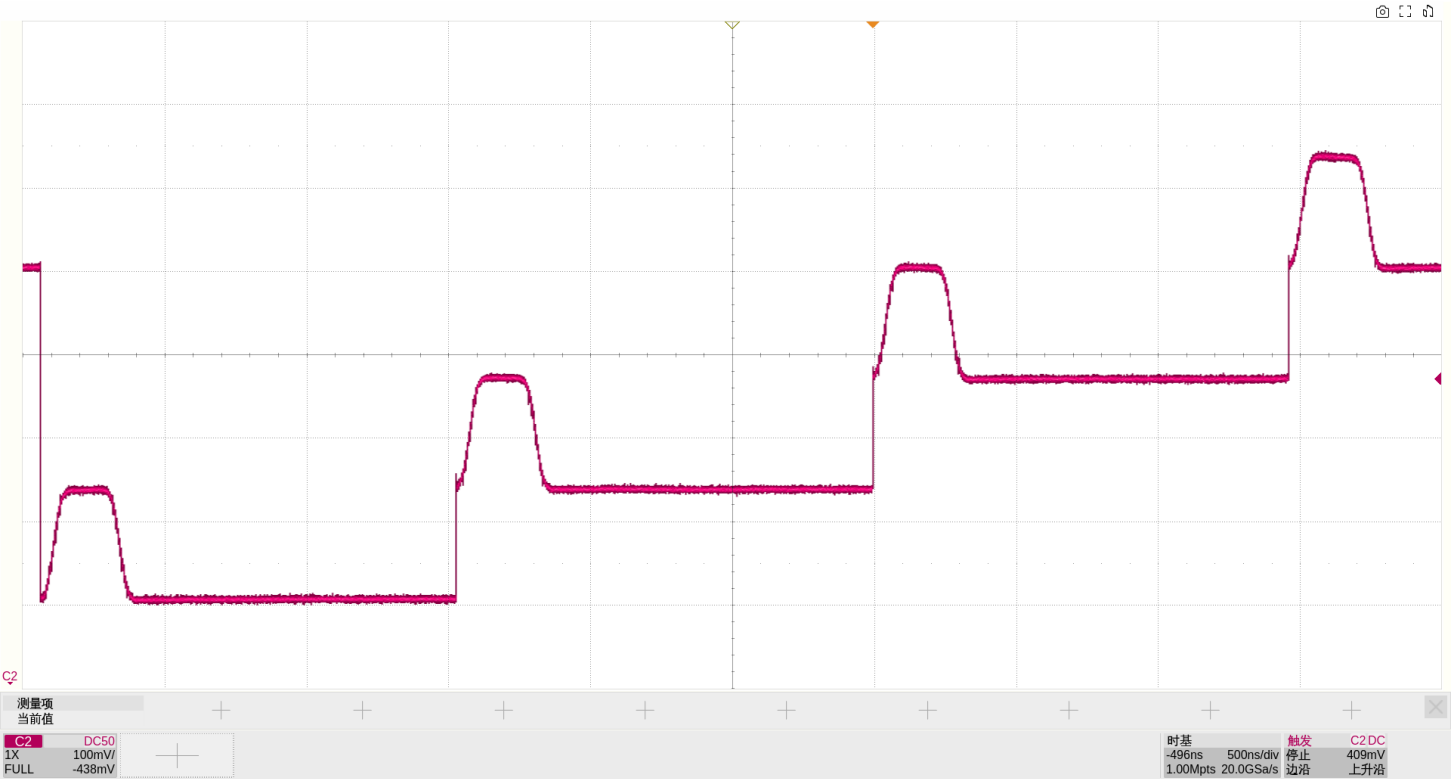
Rect包络1000点



包络调幅输出

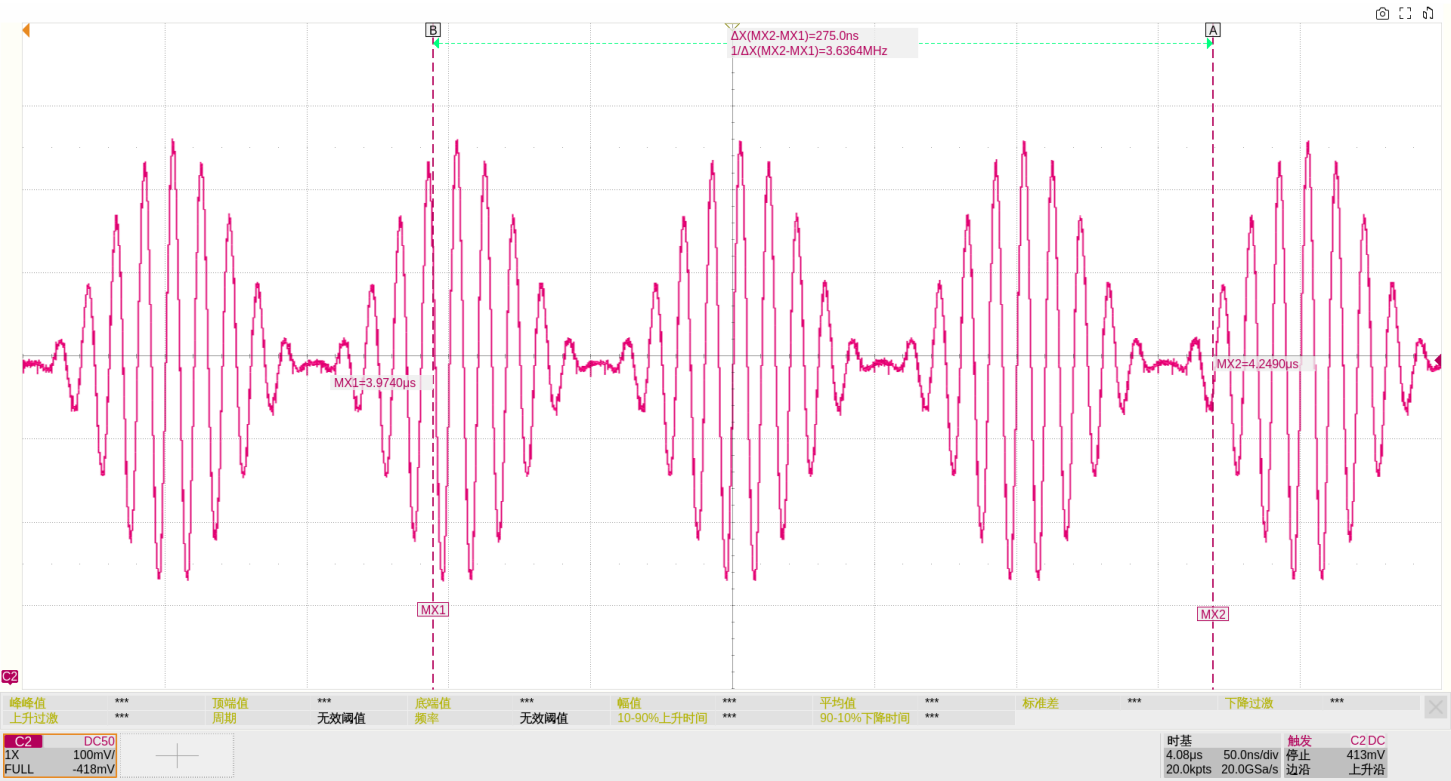


调偏



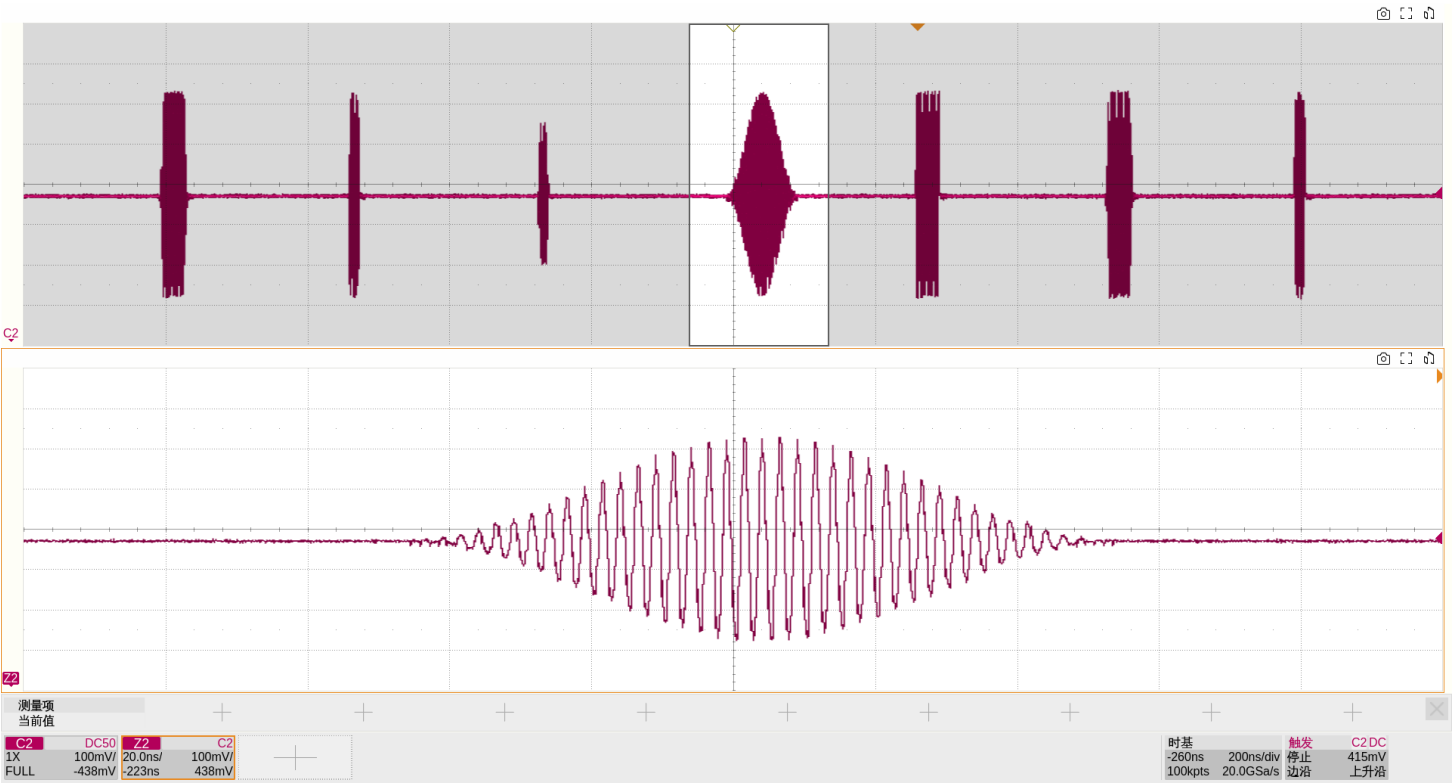
AWG调制

背靠背输出

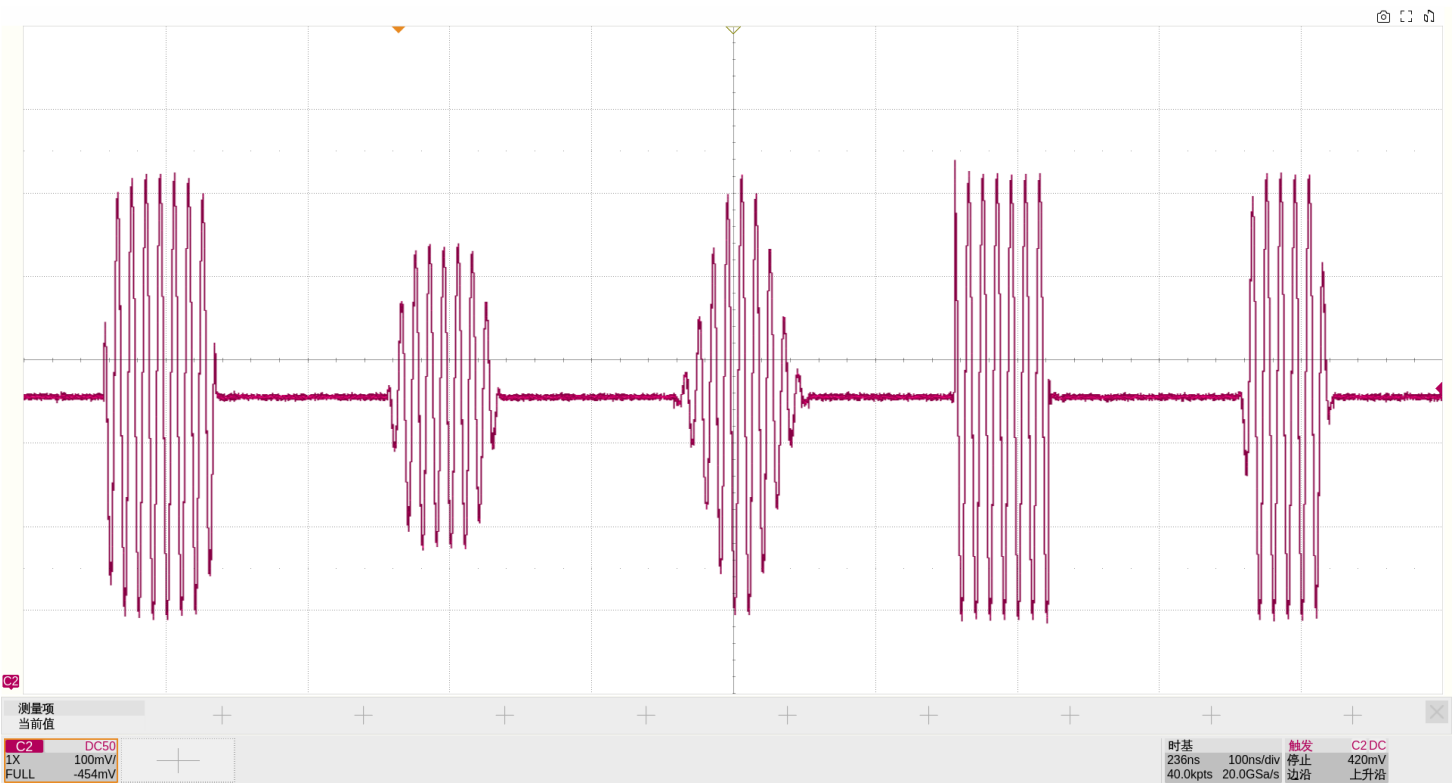


组合调制输出

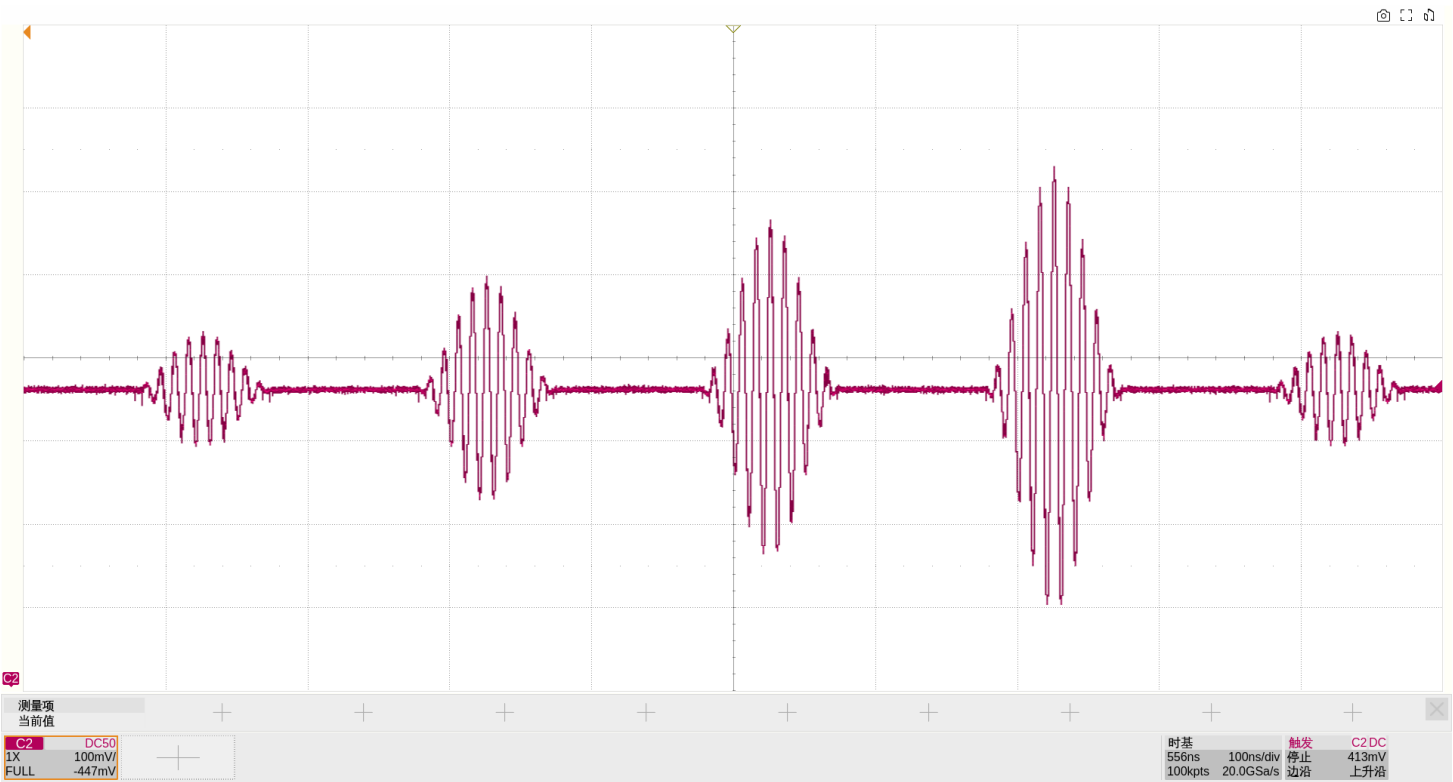
case 0



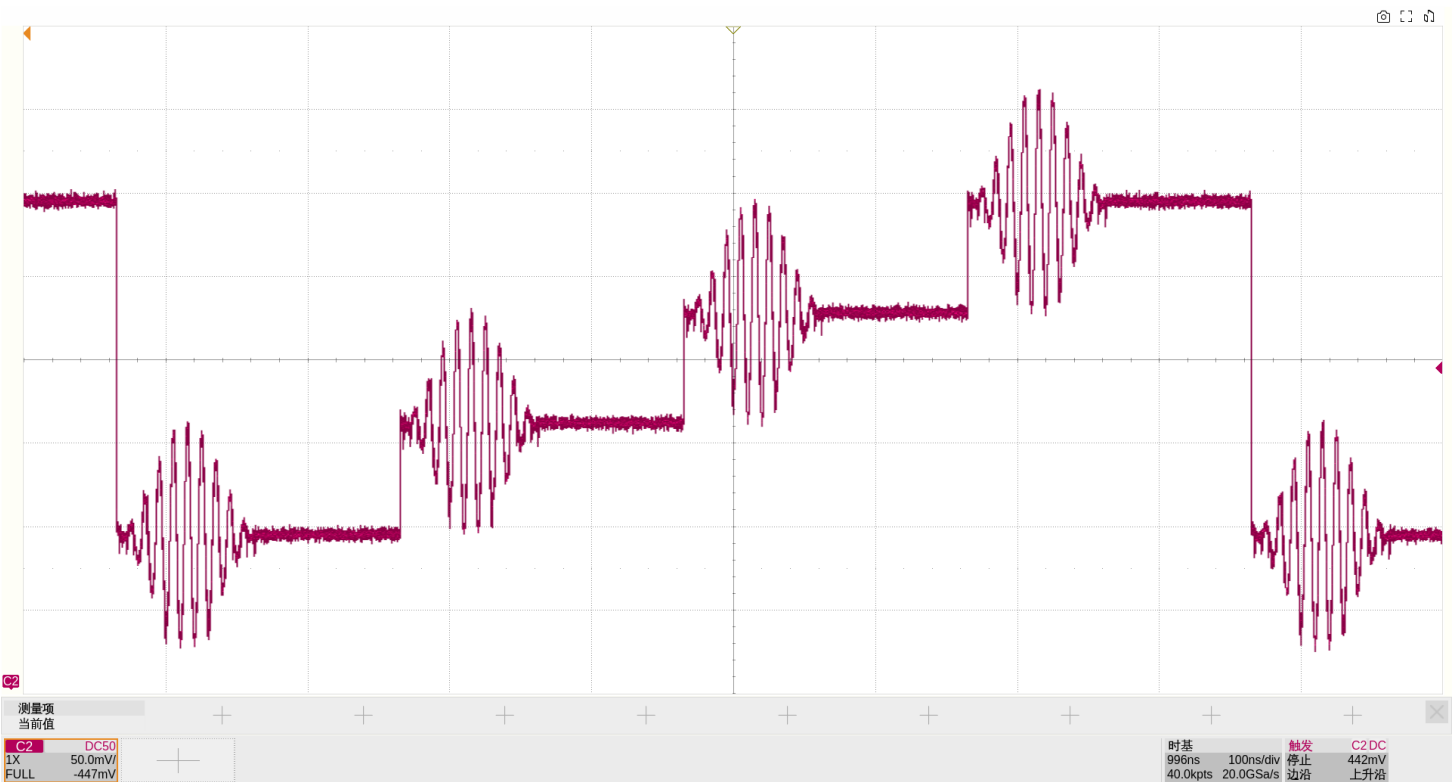
case 1



case 2



case 3



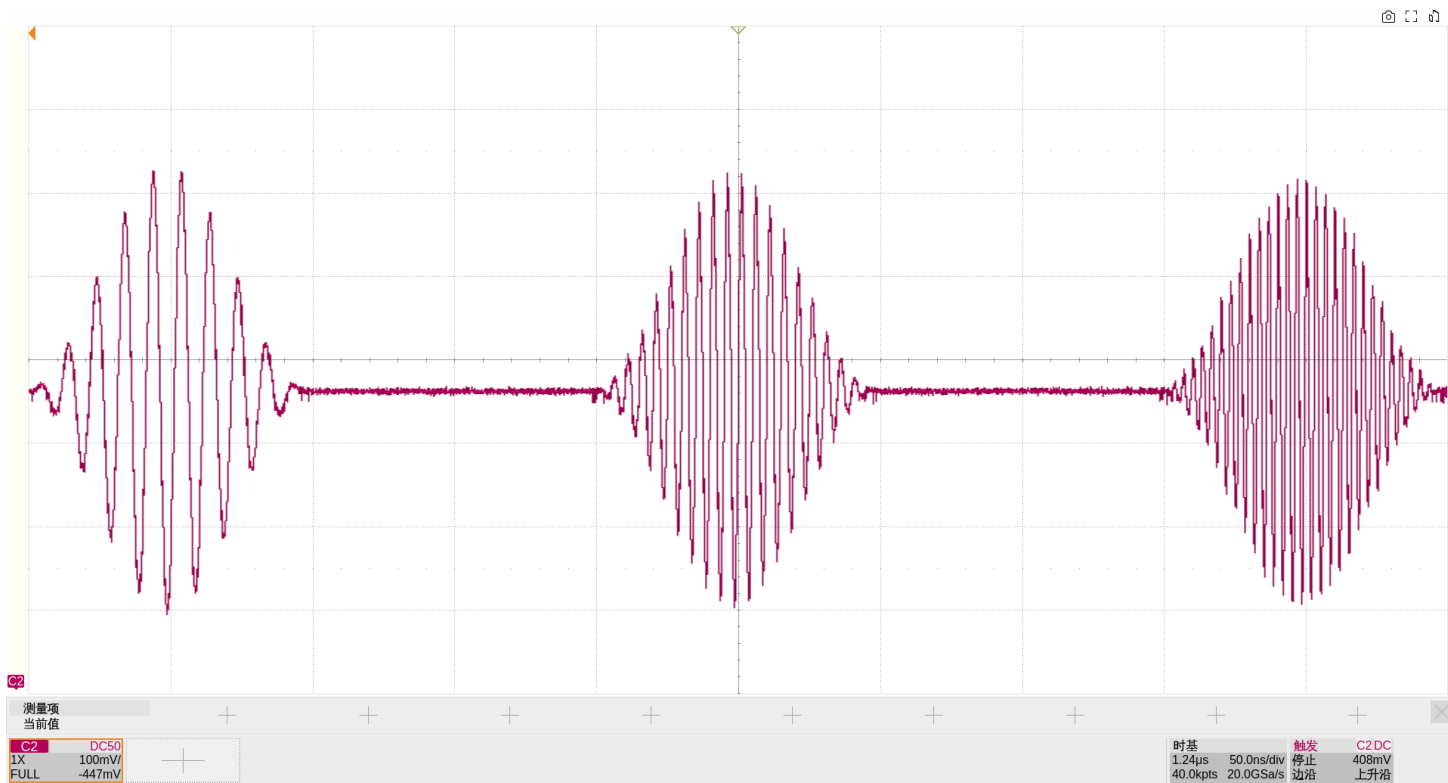
case 4



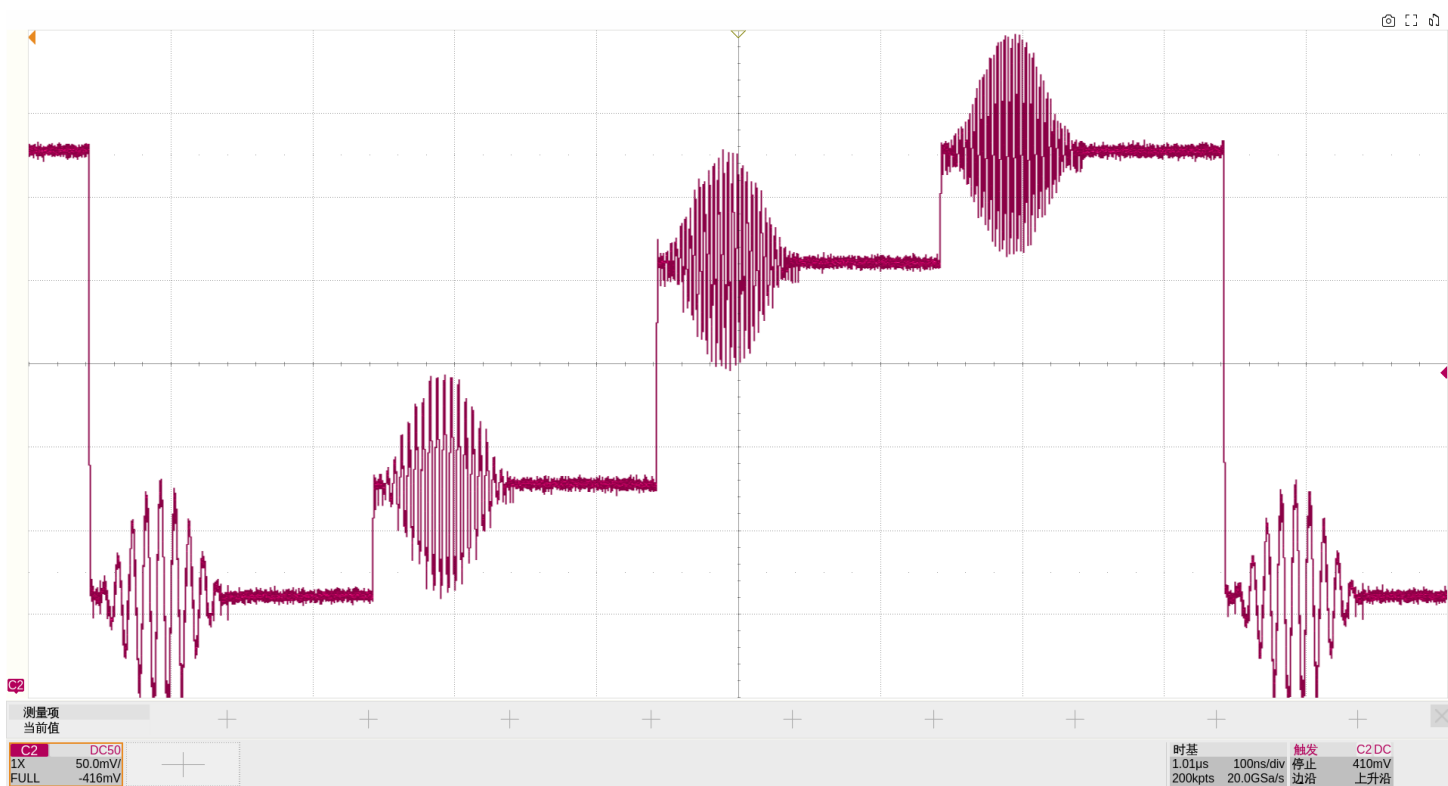
case 5



case 6



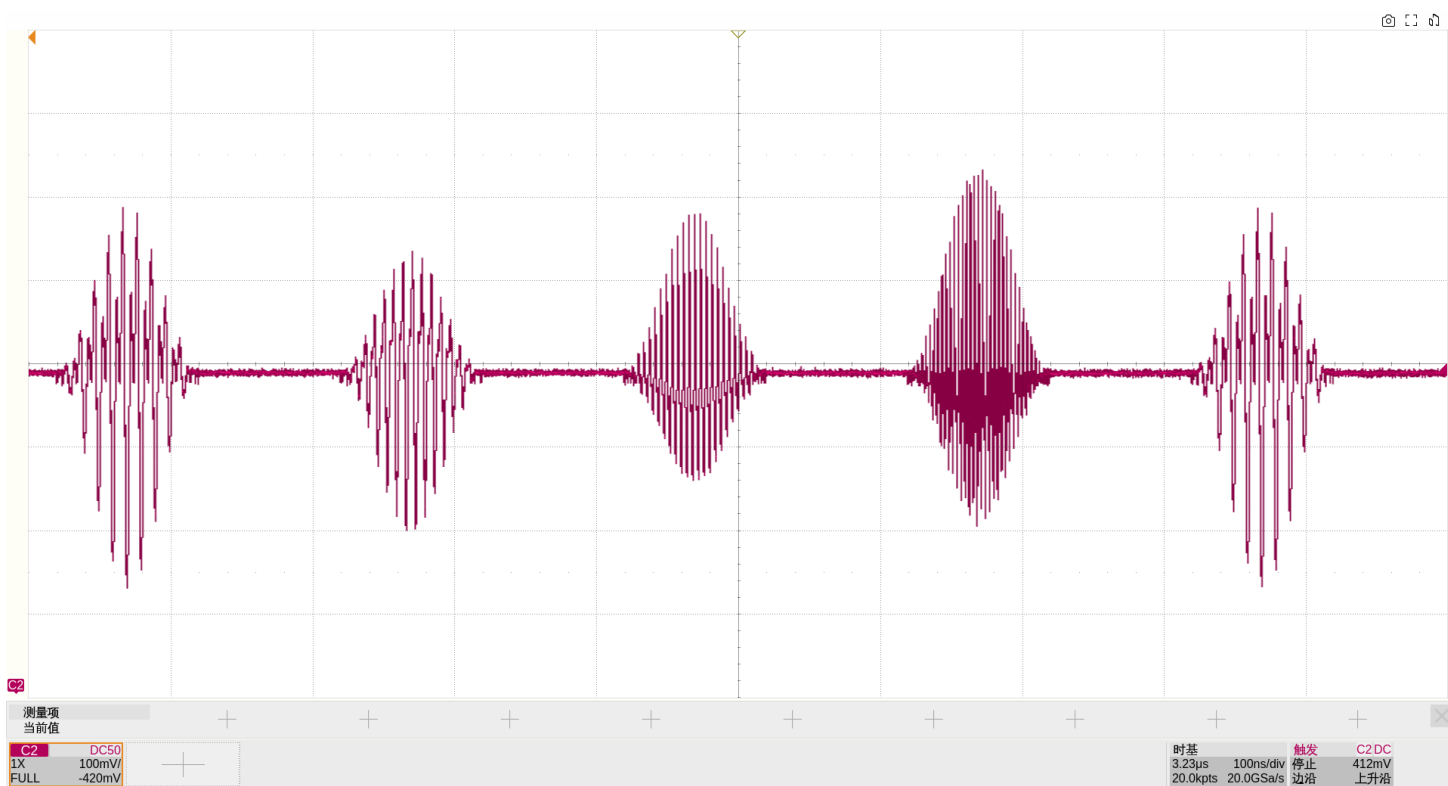
case 7



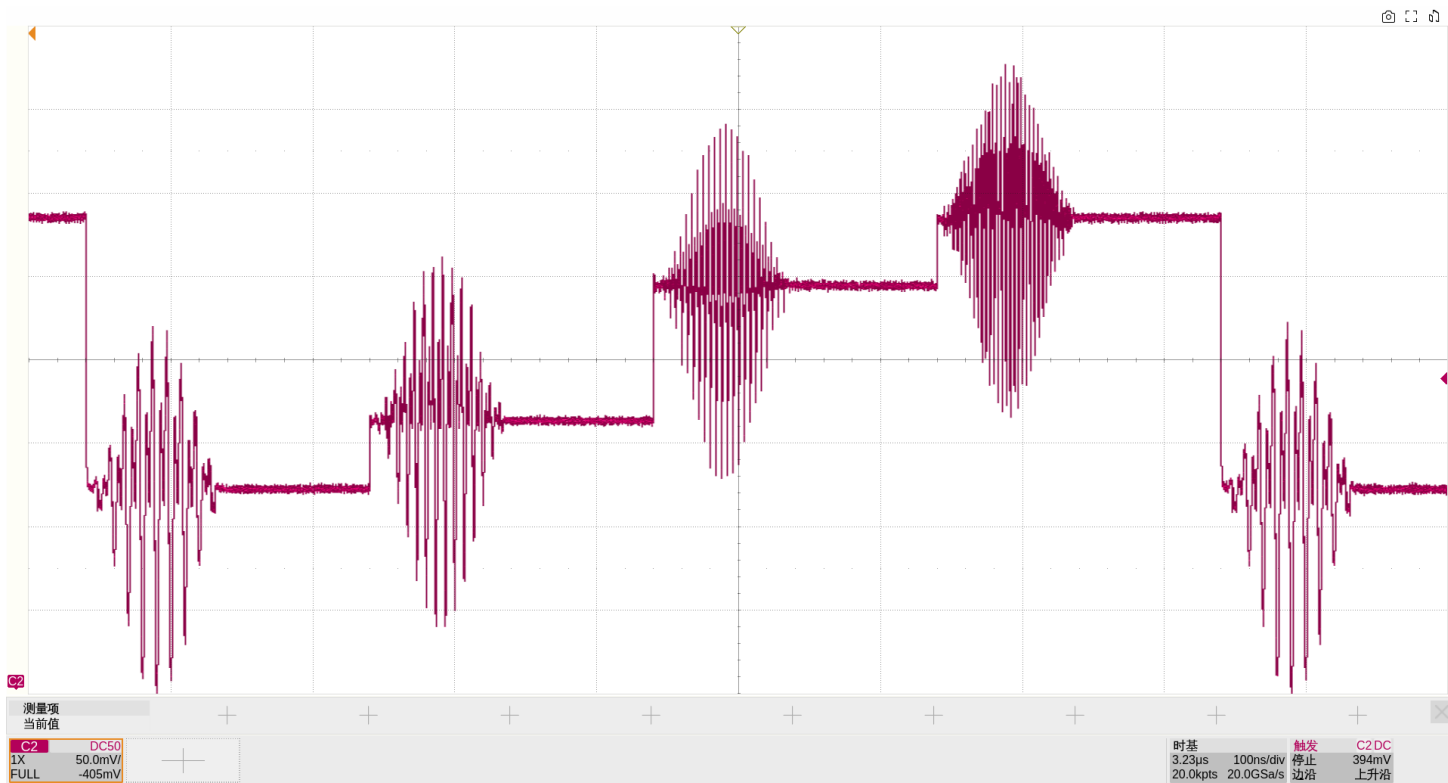
case 8



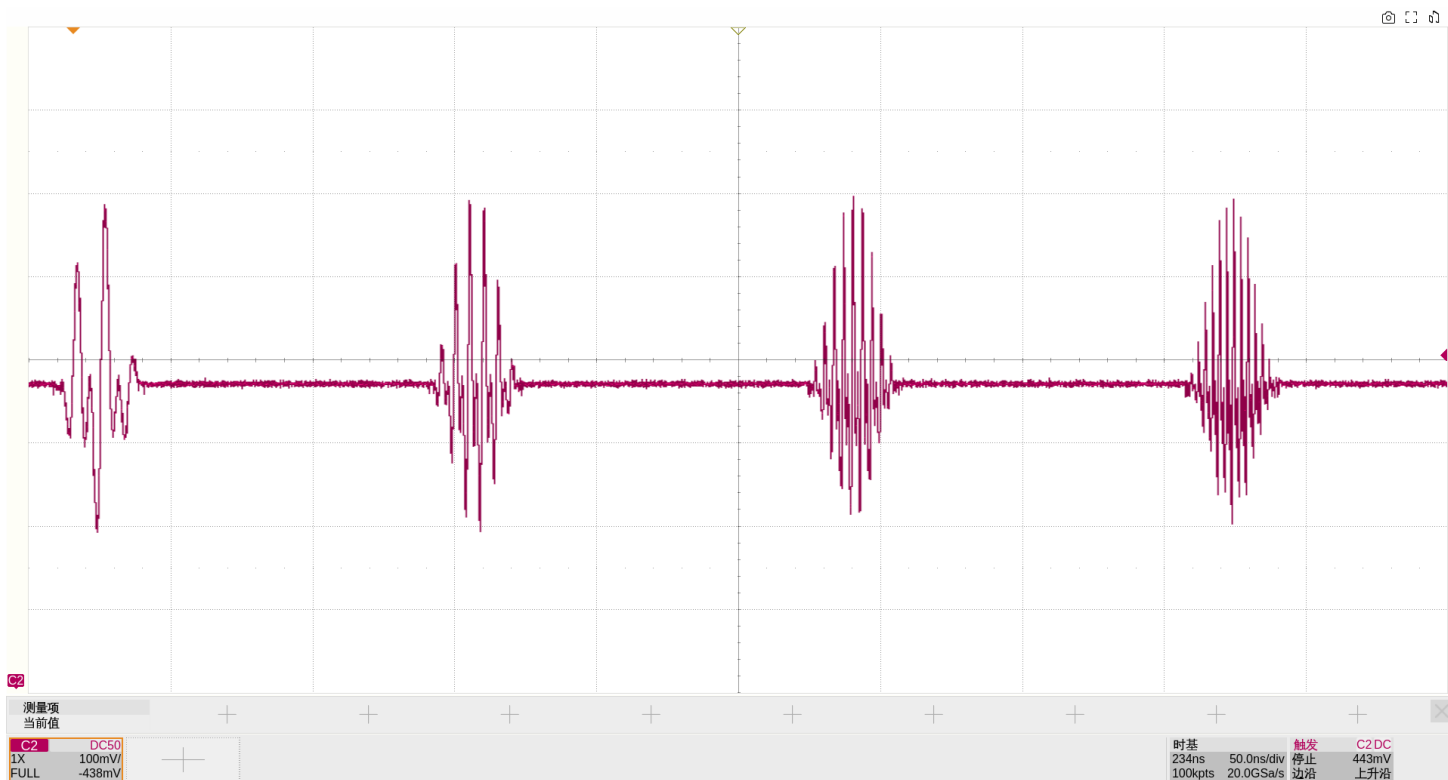
case 9



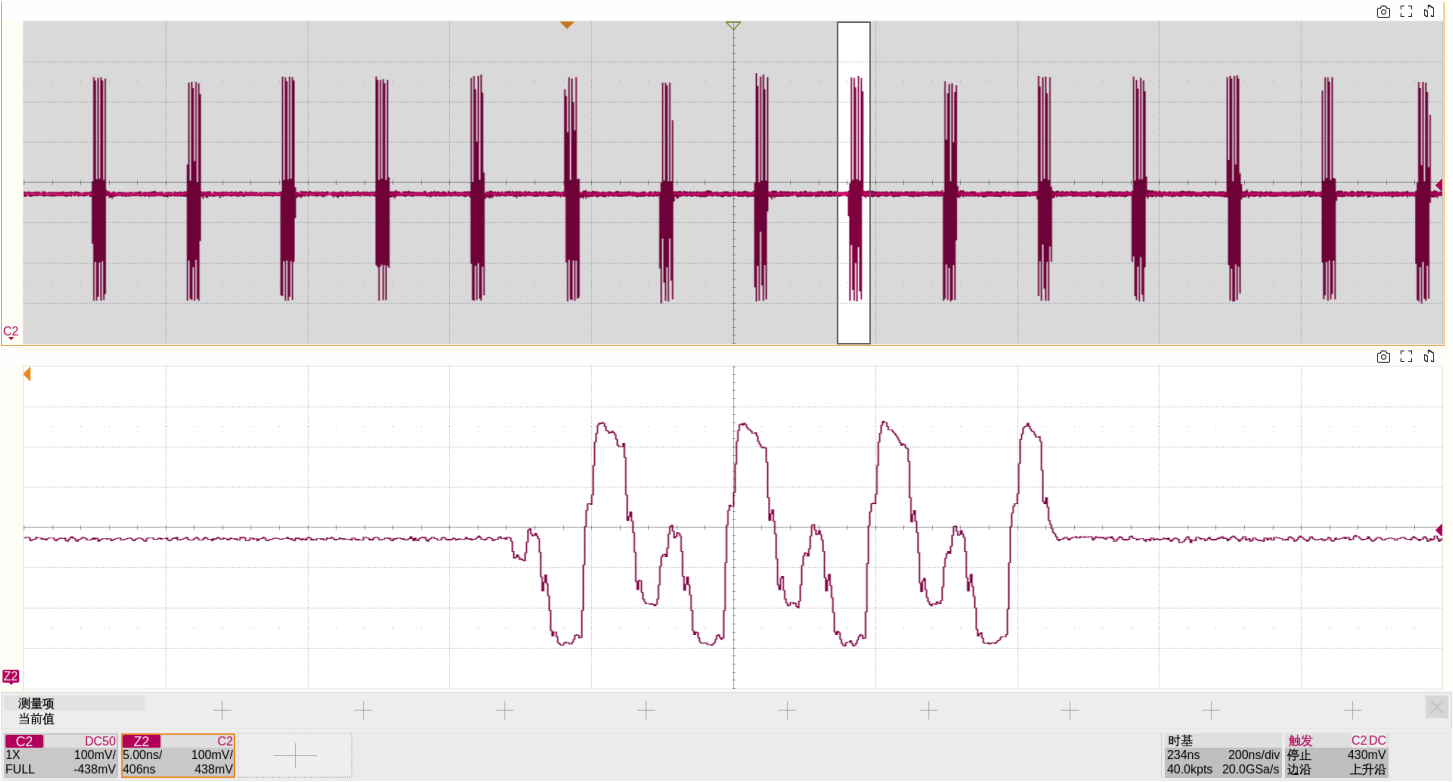
case 10



双频点

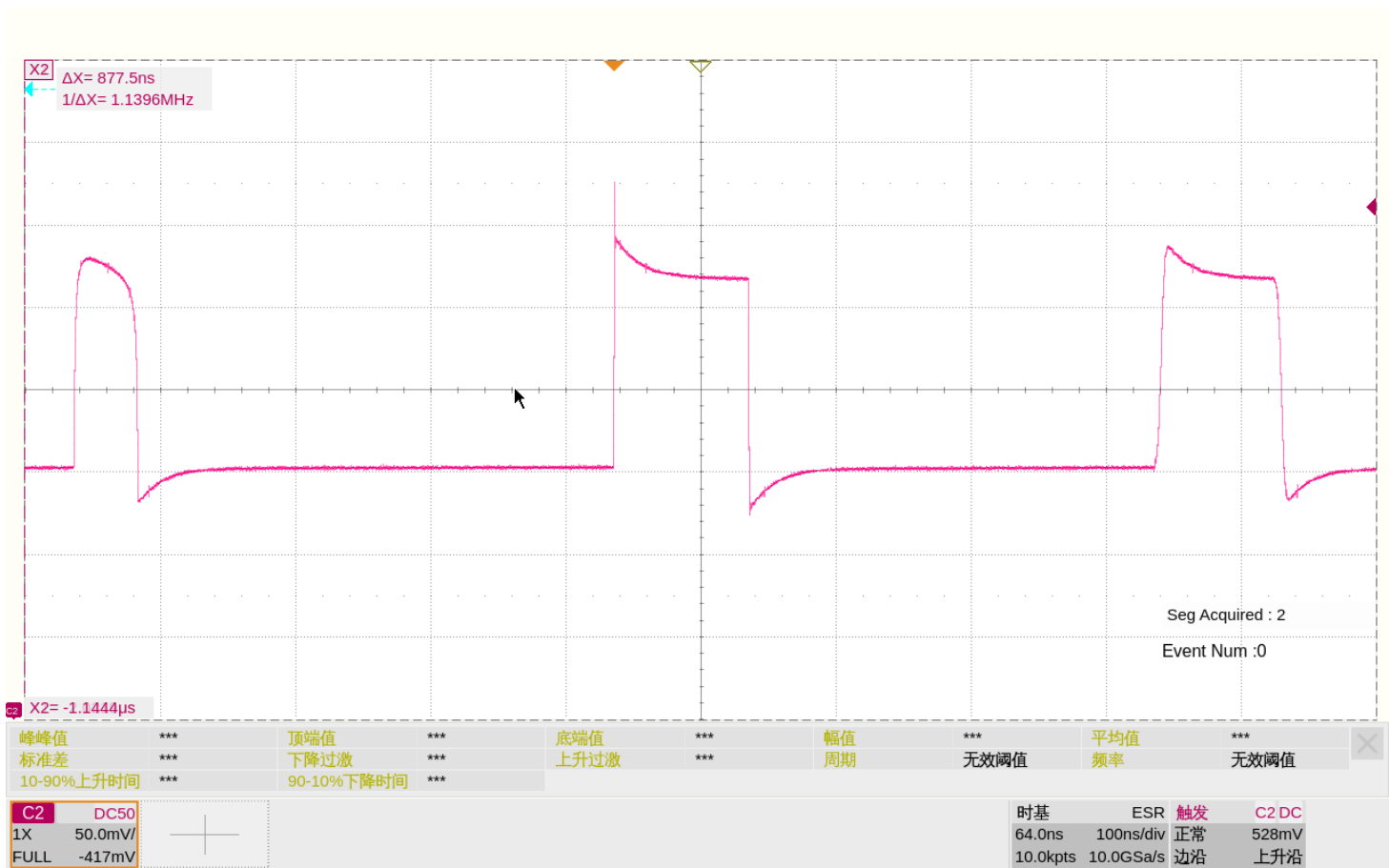


双频点调相

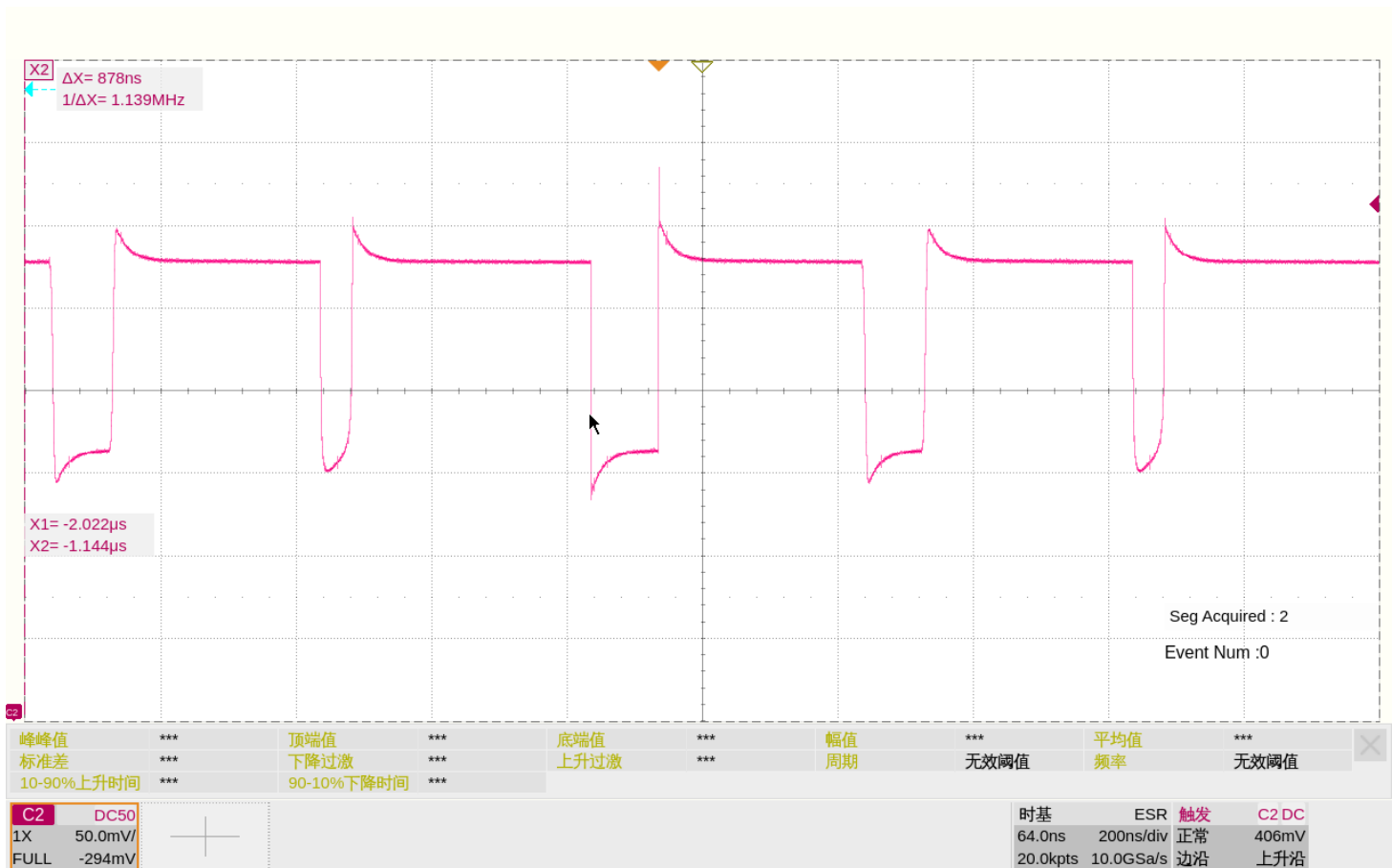


拖尾矫正

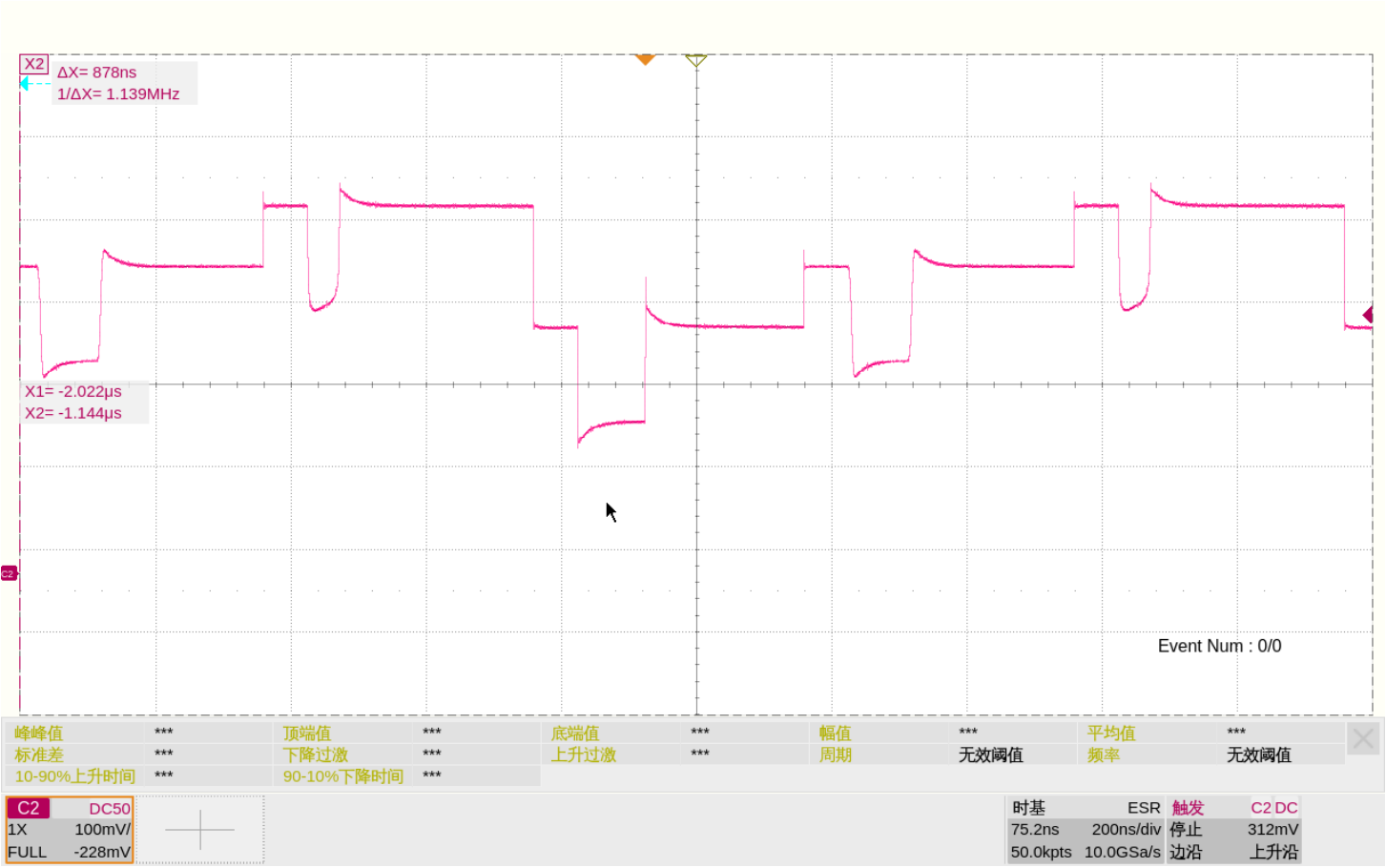
拖尾矫正case 0



拖尾矫正case 1



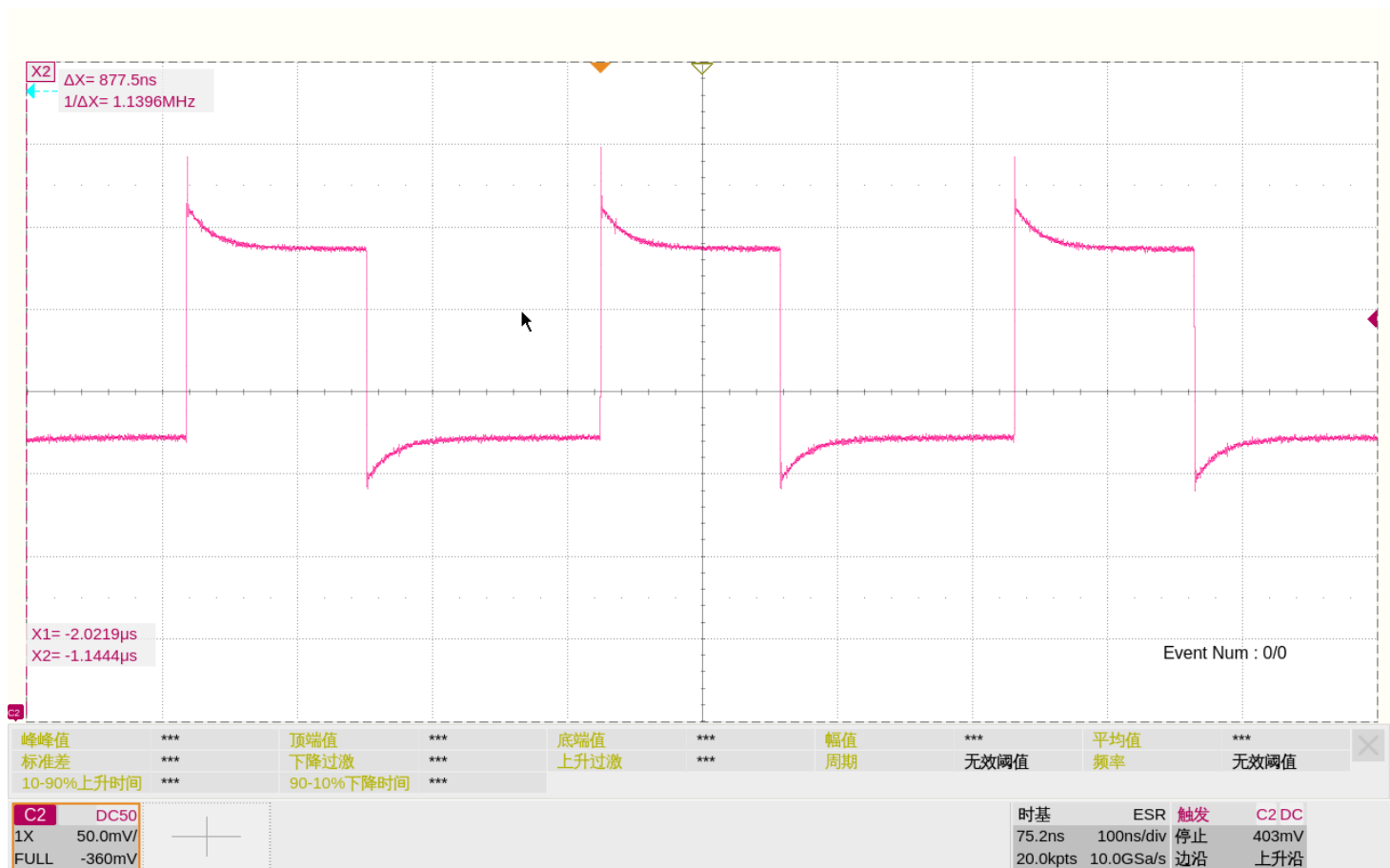
拖尾矫正case 2



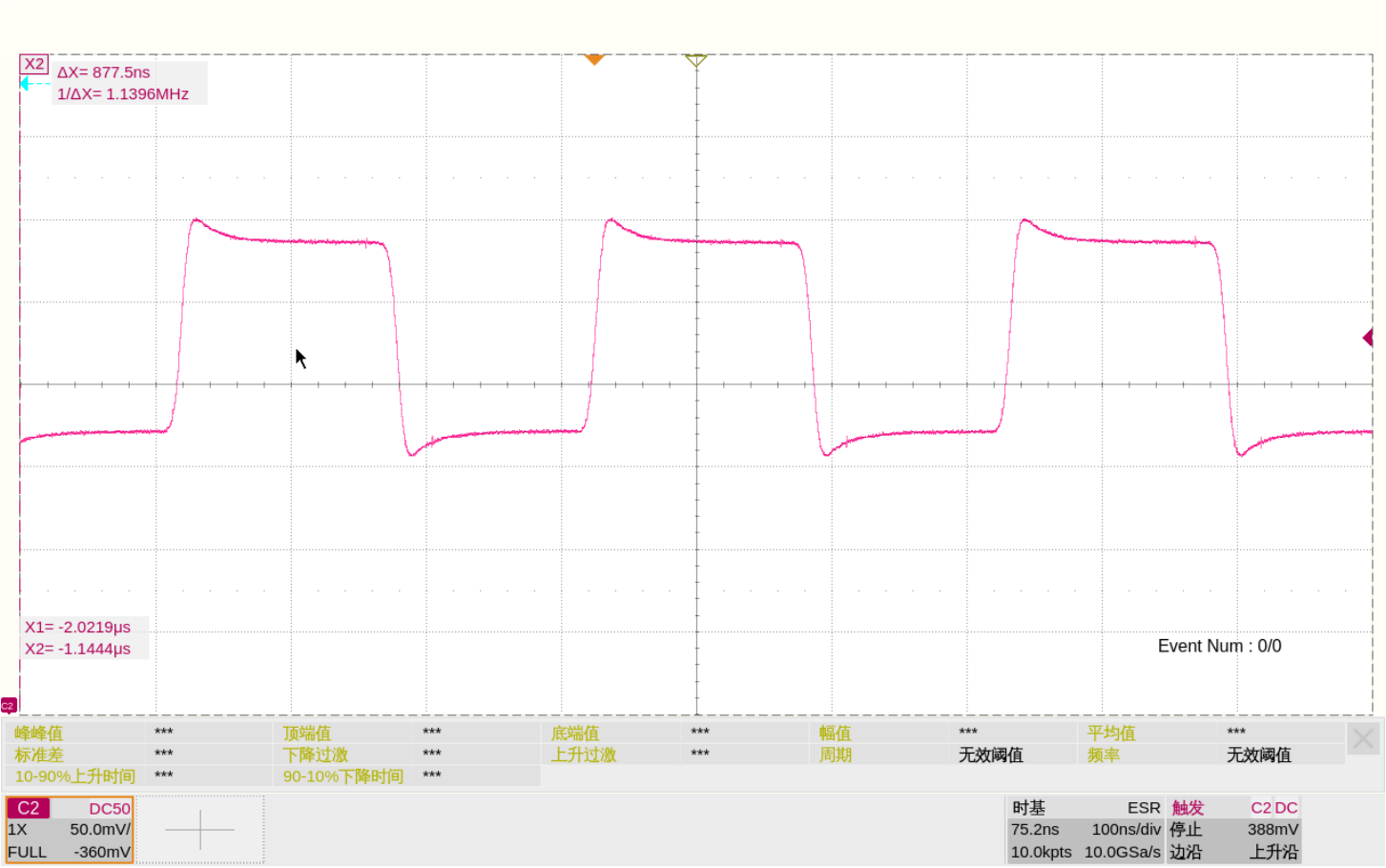
拖尾矫正case 3



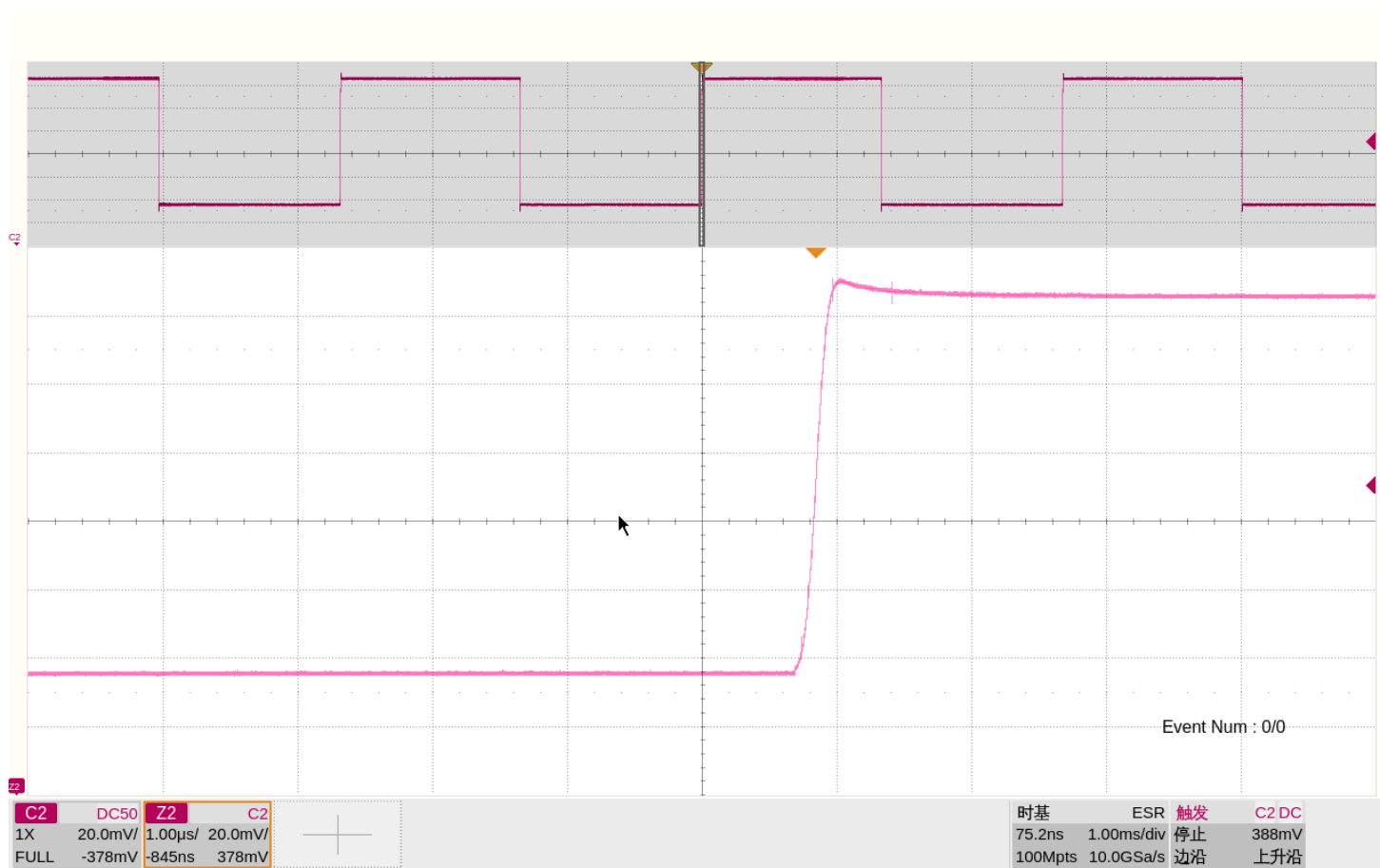
拖尾矫正case 4



拖尾矫正case 5



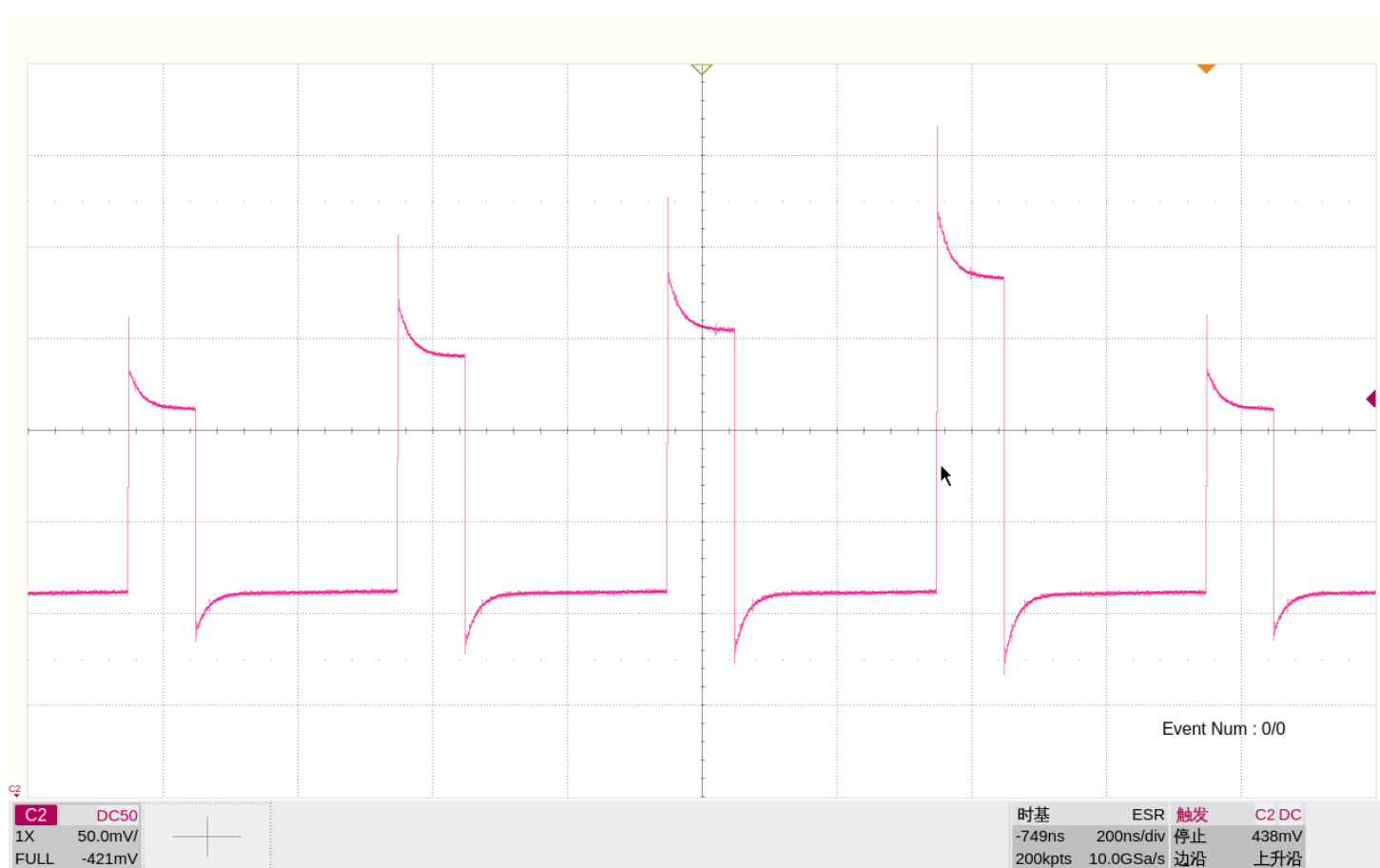
拖尾矫正case 6



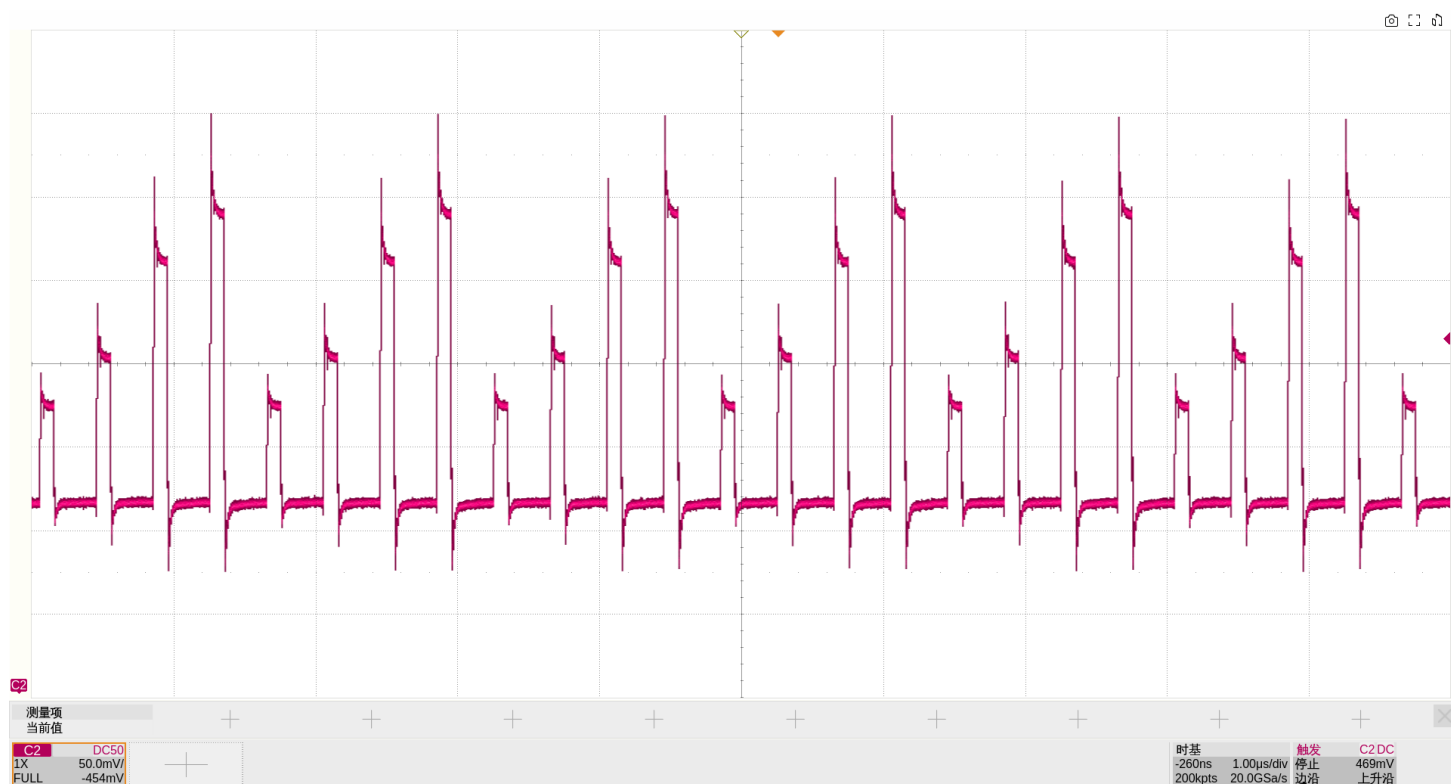
拖尾矫正case 7



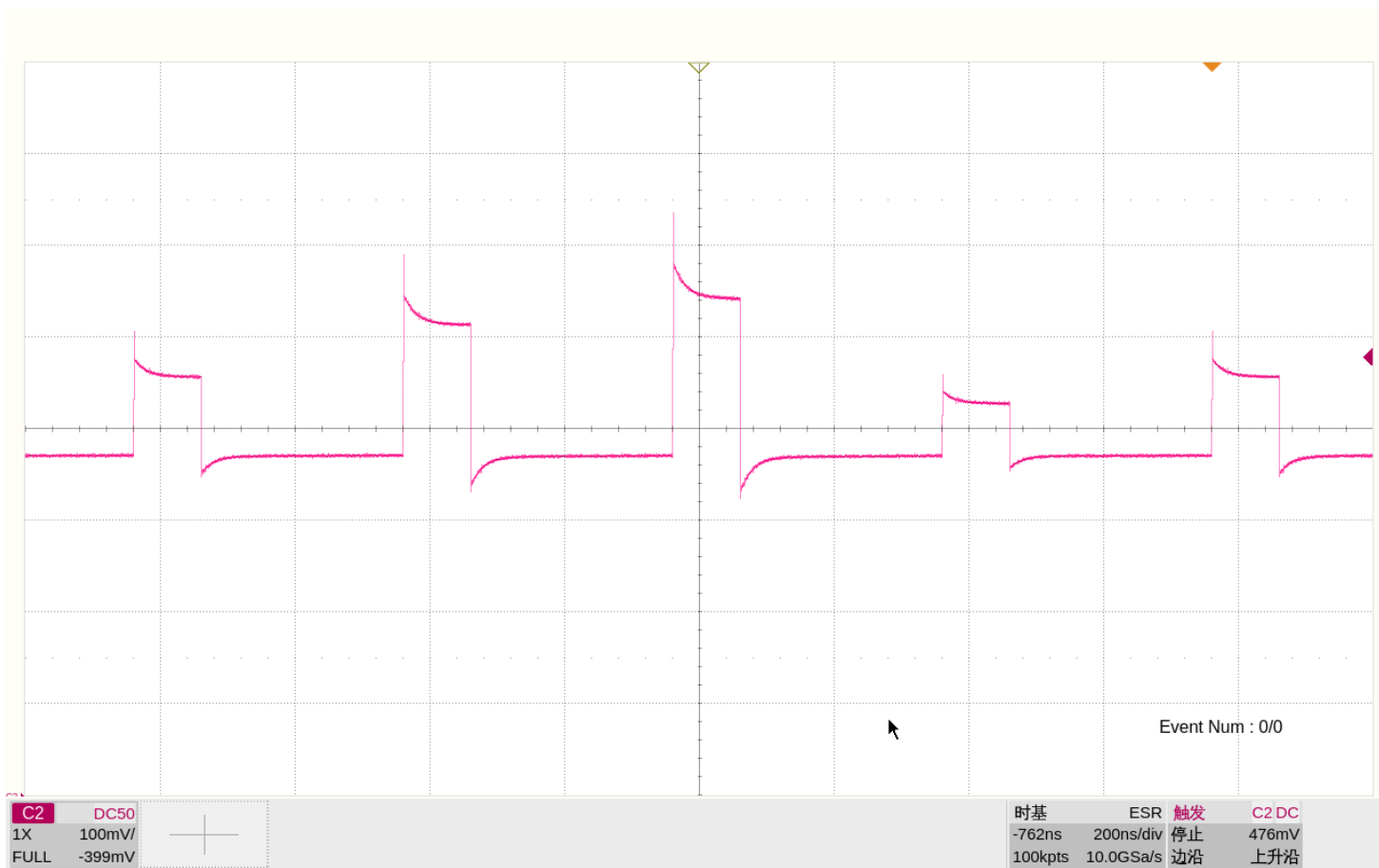
拖尾矫正case 8



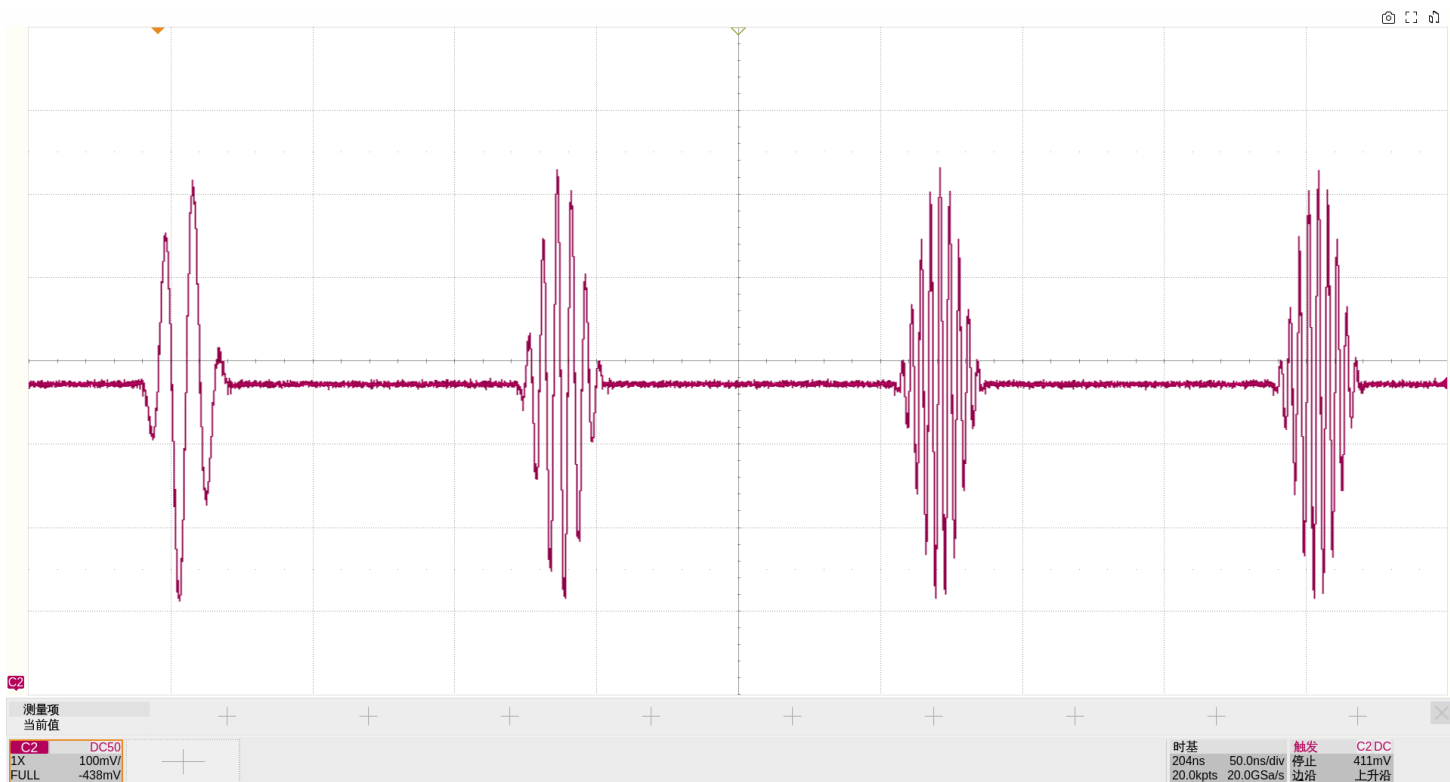
拖尾矫正case 9



拖尾矫正case 10



调频输出



反馈输出

同XY

组合调制输出

异常上报功能

异常管理

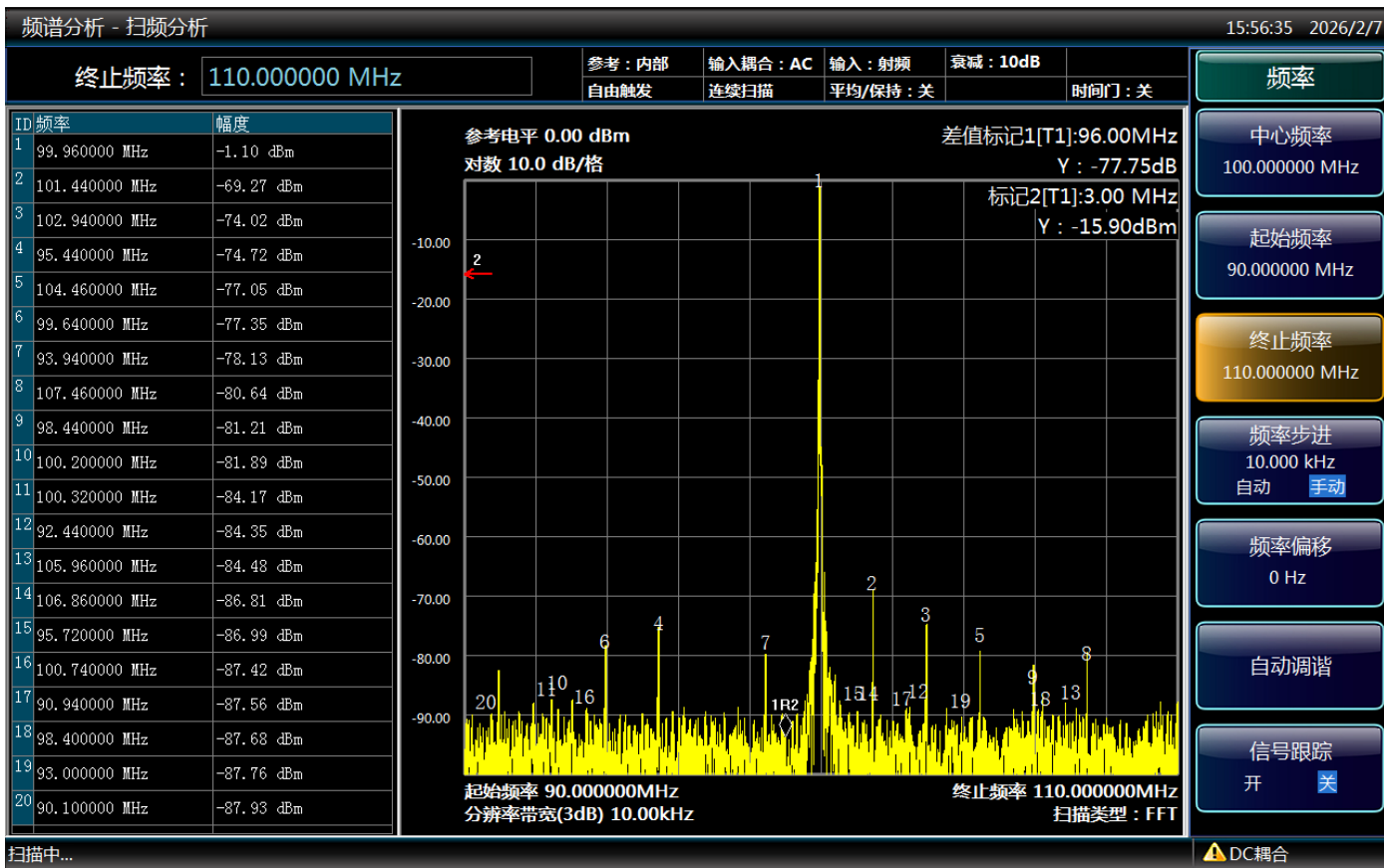
异常上报

数字性能测试

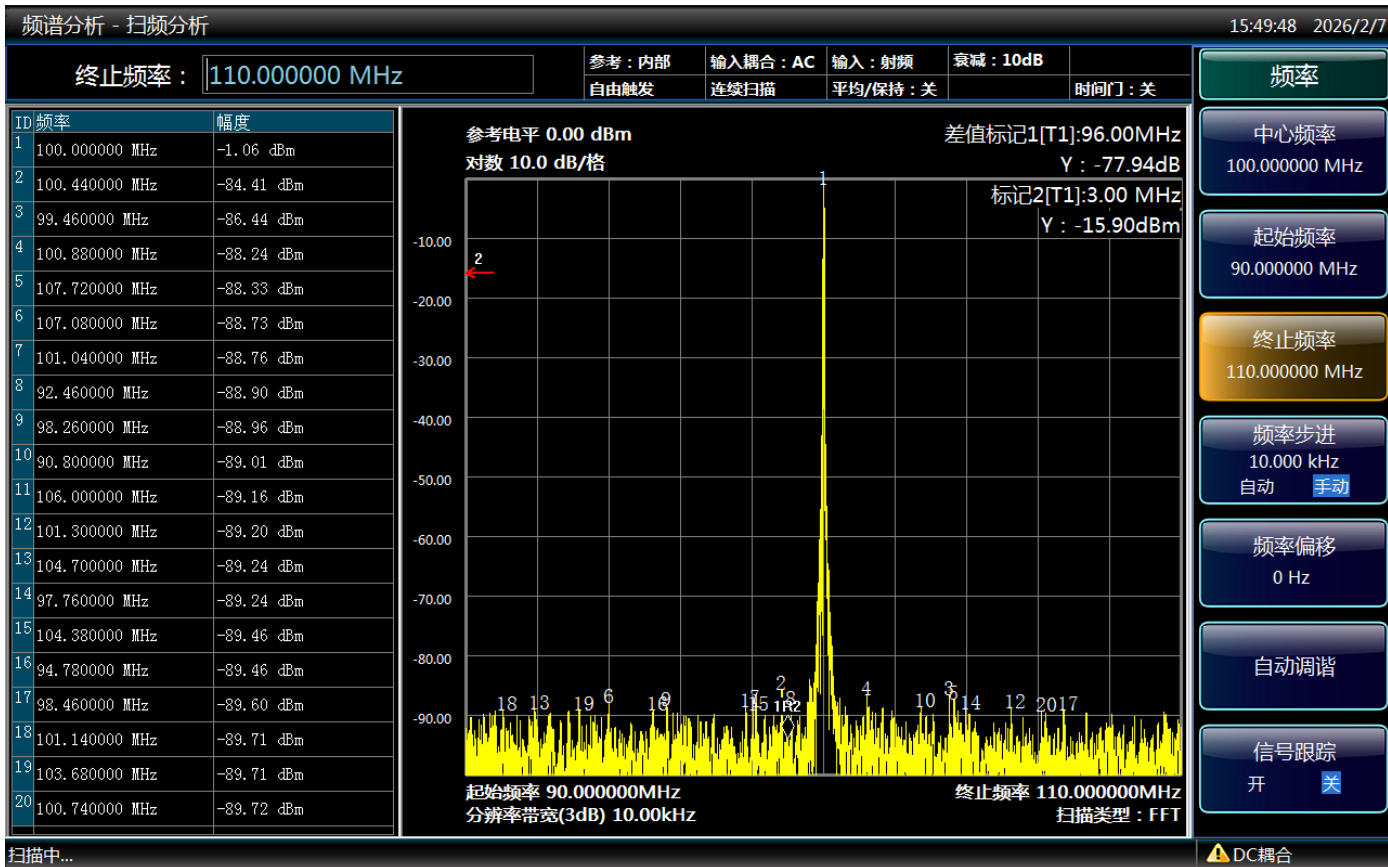
NCO性能测试

NCO频率调节步进

- NCO输出99.95MHz



- NCO输出100MHz



- NCO输出100.05MHz

终止频率：110.000000 MHz

参考：内部

输入耦合：AC

输入：射频

衰减：10dB

自由触发

连续扫描

平均/保持：关

时间门：关

频率

中心频率

100.000000 MHz

起始频率

90.000000 MHz

终止频率

110.000000 MHz

频率步进

10.000 kHz

自动 手动

频率偏移

0 Hz

自动调谐

信号跟踪

开 关

ID	频率	幅度
1	100.060000 MHz	-1.07 dBm
2	98.540000 MHz	-69.03 dBm
3	104.560000 MHz	-74.97 dBm
4	97.040000 MHz	-76.16 dBm
5	106.060000 MHz	-78.37 dBm
6	95.540000 MHz	-79.21 dBm
7	92.560000 MHz	-81.60 dBm
8	101.540000 MHz	-83.40 dBm
9	109.060000 MHz	-84.24 dBm
10	100.420000 MHz	-84.60 dBm
11	94.060000 MHz	-85.79 dBm
12	107.540000 MHz	-86.18 dBm
13	99.000000 MHz	-86.83 dBm
14	106.620000 MHz	-87.25 dBm
15	91.040000 MHz	-87.26 dBm
16	101.320000 MHz	-87.31 dBm
17	102.380000 MHz	-87.34 dBm
18	99.580000 MHz	-87.34 dBm
19	92.080000 MHz	-87.41 dBm
20	104.960000 MHz	-88.06 dBm

参考电平 0.00 dBm

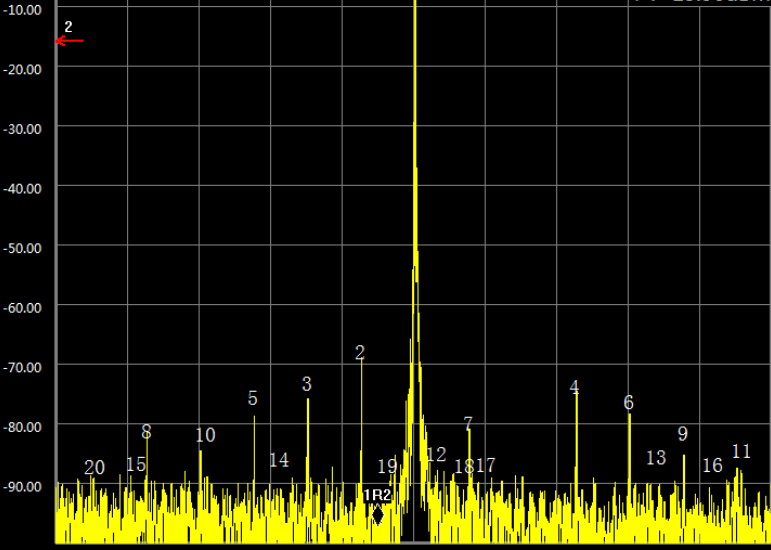
对数 10.0 dB/格

差值标记1[T1]:96.00MHz

Y : -81.51dB

标记2[T1]:3.00 MHz

Y : -15.90dBm



起始频率 90.000000MHz

终止频率 110.000000MHz

分辨率带宽(3dB) 10.00kHz

扫描类型：FFT

扫描中...

⚠ DC耦合

NCO相位调节步进

NCO频率调节范围

NCO相位调节范围

NCO频率调节速度

NCO相位调节速度

AWG性能测试

输出单个波形最小长度

输出单个波形最大长度

