



COMPANY NAME: TOPAZ3, L.L.C..
EUT: SM-3450 MOBILE RADIO
CLIENT REFERENCE NUMBER: QRTL00-316
WORK ORDER NUMBER: 2000301
FCC ID: 07KSM3450U2

9 FCC Rules and Regulations Part 90 §90.214: TRANSIENT FREQUENCY BEHAVIOR

9.1 Test Procedure

ANSI/TIA/EIA-603-1992, section 2.2.19

9.2 Test Data

9.2.1 LIMITS:

Requirements for EUT with 25 kHz channel spacing:

Time Intervals (*)(**)	Maximum Frequency Difference(***)	150-174 MHz	421-512 MHz
t1(****)	± 25 kHz	5.0 mSec	10.0 mSec
t2	± 12.5 kHz	20.0 mSec	25.0 mSec
t3(****)	± 25 kHz	5.0 mSec	10.0 mSec

Requirements for EUT with 12.5 kHz channel spacing:

Time Intervals (*)(**)	Maximum Frequency Difference(***)	150-174 MHz	421-512 MHz
t1(****)	± 12.5 kHz	5.0 mSec	10.0 mSec
t2	± 6.25 kHz	20.0 mSec	25.0 mSec
t3(****)	± 12.5 kHz	5.0 mSec	10.0 mSec

(*) t on is the instant when a 1 kHz test signal is completely suppressed, including any capture time due to phasing.

t 1 is the time period immediately following ton.

t2 is the time period immediately following t1.

t3 is the time period from the instant when the transmitter is turned off until toff.

toff is the instant when the 1 kHz test signal starts to rise.

(**) During the time from the end of t2 to the beginning of t3, the frequency difference must not exceed the limits specified in § 90.213.

(***) Difference between the actual transmitter frequency and the assigned transmitter frequency.

(****) If the transmitter carrier output power rating is 6 watts or less, the frequency difference during this time period may exceed the maximum frequency difference for this time period.

9.2.2 MAXIMUM FREQUENCY DIFFERENCE BETWEEN TIME T2 AND T3: CALCULATION FOR CHANNEL 6:

The frequency stability is required to be 2.5ppm.

Calculation for Channel 6:

4 div. on scope represent 12.5kHz for narrow band channel.

Therefore, 487.975M times 2.5 ppm times +/- 4 Divisions divided by 12.5kHz equals about +/- 0.4 division. 0.4 Div. correspond to 1.219 kHz



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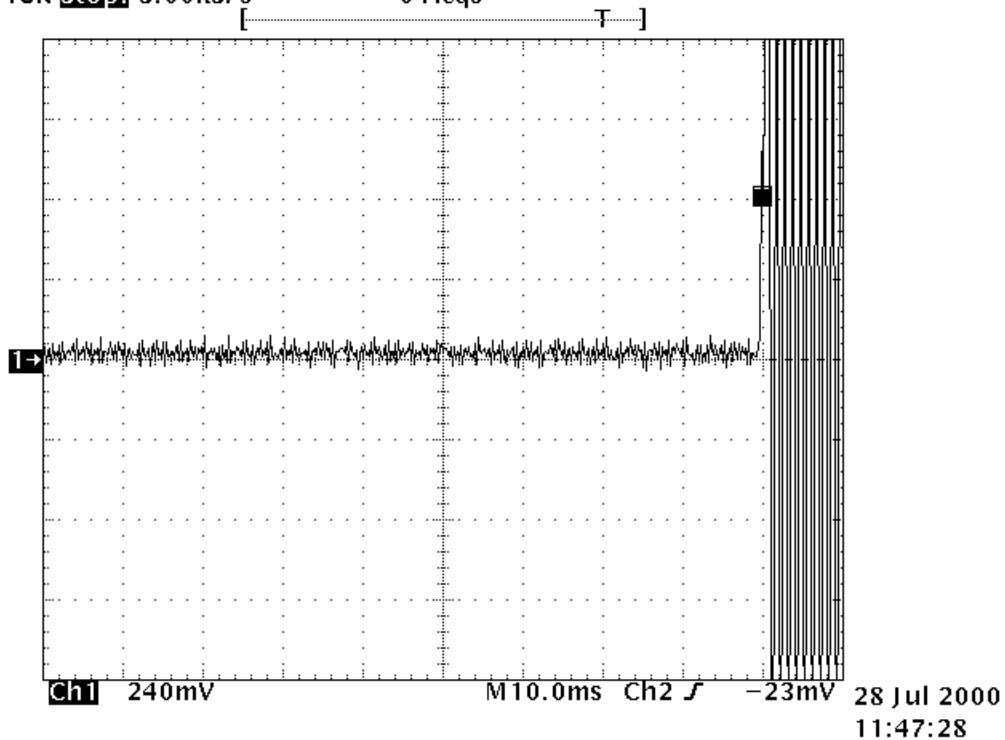
9.2.3 CARRIER OFF TIME:

9.2.3.1 CHANNEL 1 : 40.025 MHZ NB(12.5KHZ) HIGH POWER: 40 W RATED

RF Signal Generator: Modulation 12.5kHz deviation

Tek Stop: 5.00kS/s

6 Acqs



Timebase: 10 ms/div

Trigger: On positive edge of Ch2, level -23mV

Ch1: 240mV/div, Probe 1.000:1

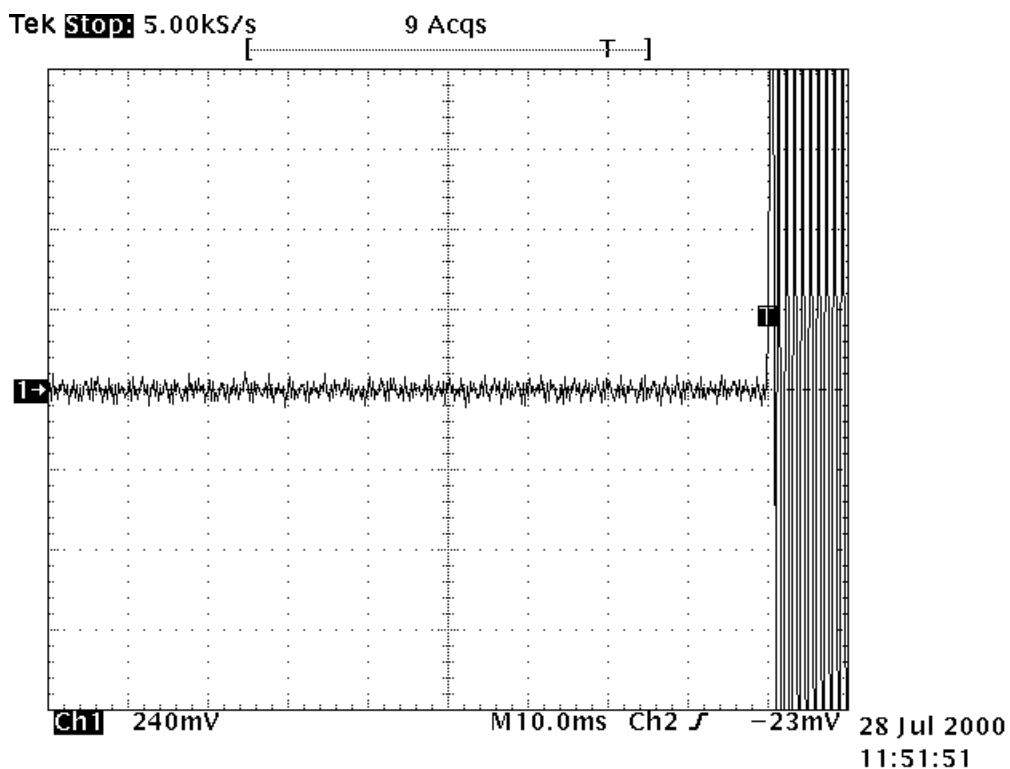
Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



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9.2.3.2 CHANNEL 2 : 455.025 MHZ NB(12.5KHZ) HIGH POWER: 40 W RATED

RF Signal Generator: Modulation 12.5kHz deviation



Timebase: 10 ms/div

Trigger: On positive edge of Ch2, level -23mV

Ch1: 240mV/div, Probe 1.000:1

Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



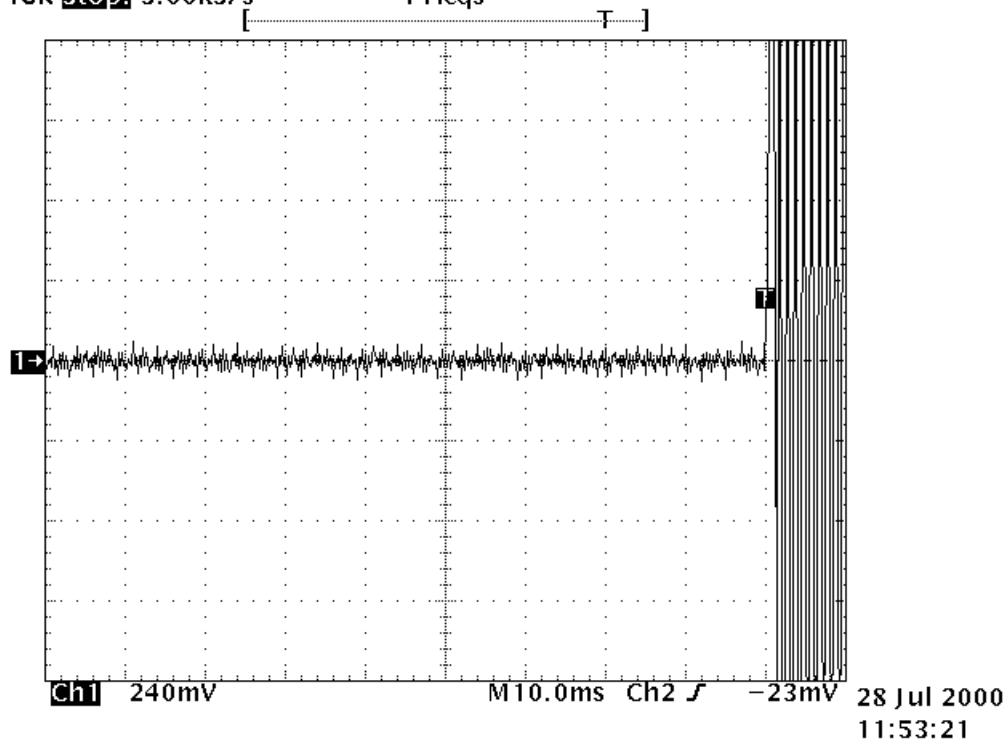
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9.2.3.3 CHANNEL 3 : 470.025 MHZ NB(12.5KHZ) HIGH POWER: 40 W RATED

RF Signal Generator: Modulation 12.5kHz deviation

Tek Stop: 5.00kS/s

1 Acqs



Timebase: 10 ms/div

Trigger: On positive edge of Ch2, level -23mV

Ch1: 240mV/div, Probe 1.000:1

Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



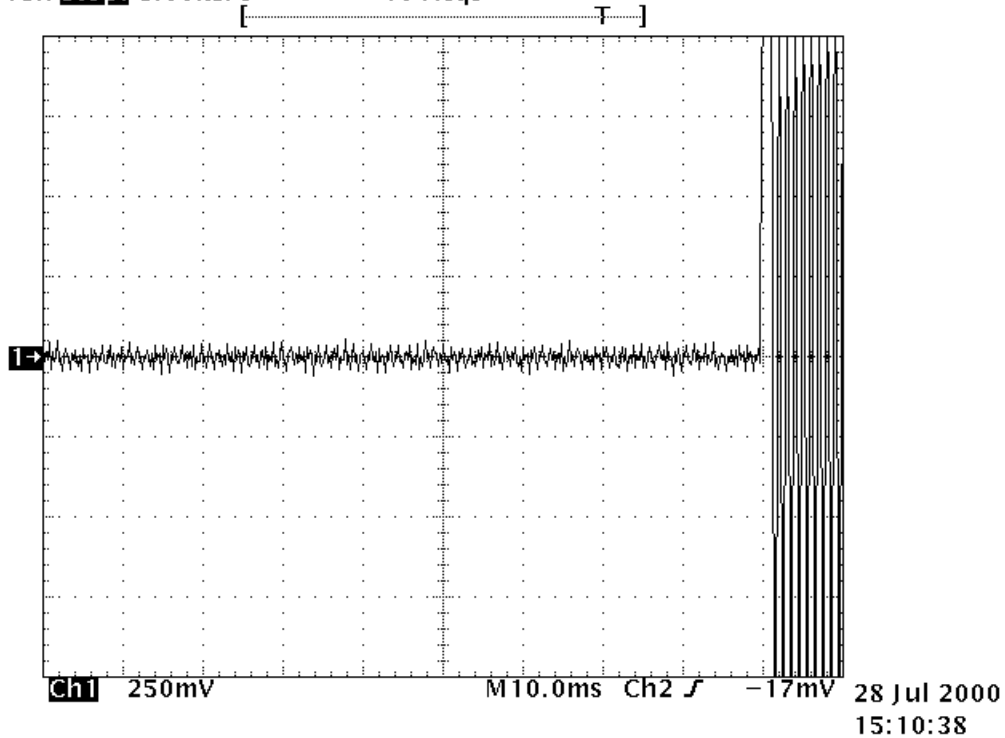
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9.2.3.4 CHANNEL 4 : 440.025 MHZ NB(12.5KHZ) HIGH POWER: 10 W RATED

RF Signal Generator: Modulation 12.5kHz deviation

Tek Stop: 5.00kS/s

10 Acqs



Timebase: 10 ms/div

Trigger: On positive edge of Ch2, level -17mV

Ch1: 250mV/div, Probe 1.000:1

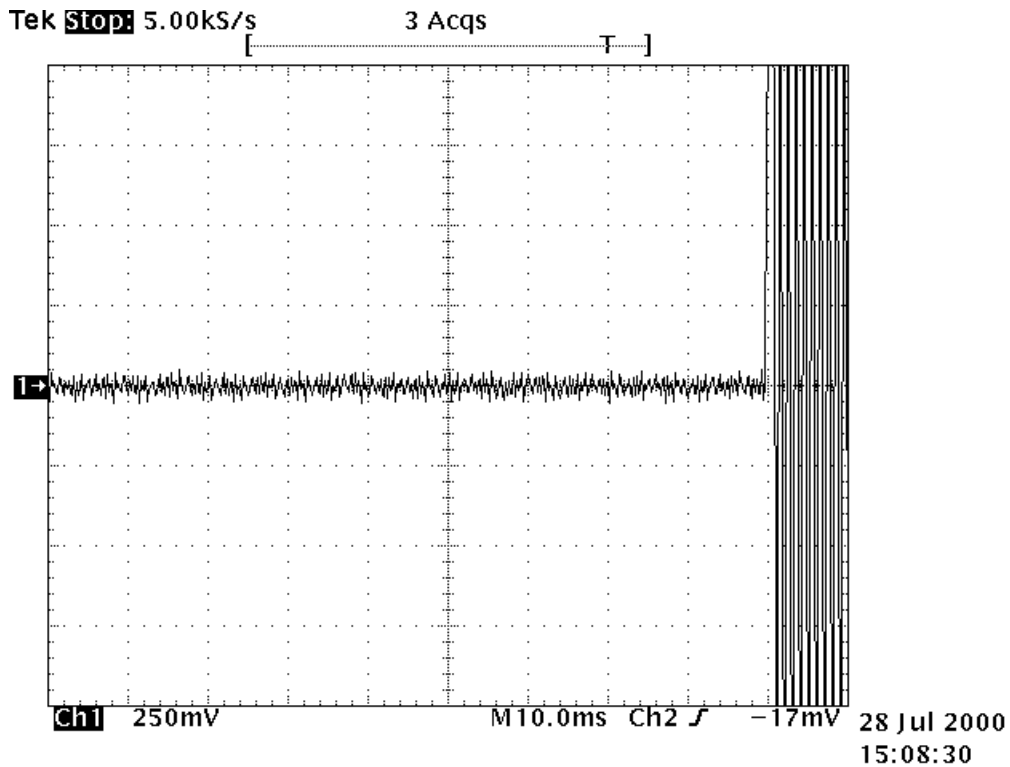
Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



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9.2.3.5 CHANNEL 5 : 455.025 MHZ NB(12.5KHZ) HIGH POWER: 10 W RATED

RF Signal Generator: Modulation 12.5kHz deviation



Timebase: 10 ms/div
Trigger: On positive edge of Ch2, level -17mV
Ch1: 250mV/div, Probe 1.000:1
Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



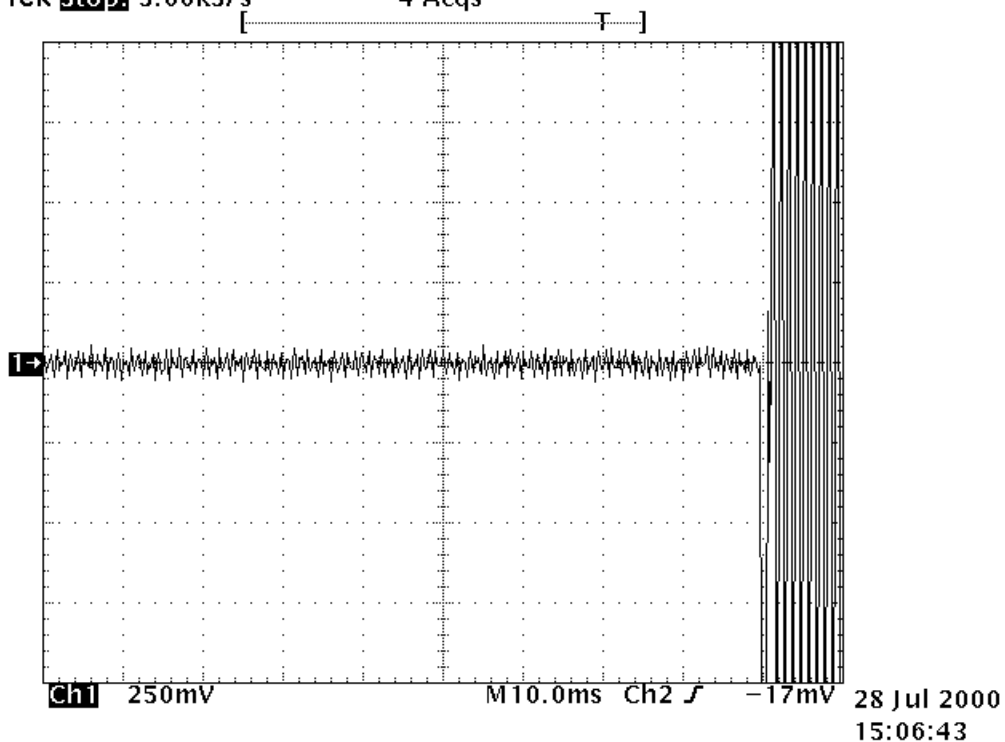
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9.2.3.6 CHANNEL 6 : 470.025 MHZ NB(12.5KHZ) HIGH POWER: 10 W RATED

RF Signal Generator: Modulation 12.5kHz deviation

Tek Stop: 5.00kS/s

4 Acqs



Timebase: 10 ms/div

Trigger: On positive edge of Ch2, level -17mV

Ch1: 250mV/div, Probe 1.000:1

Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz

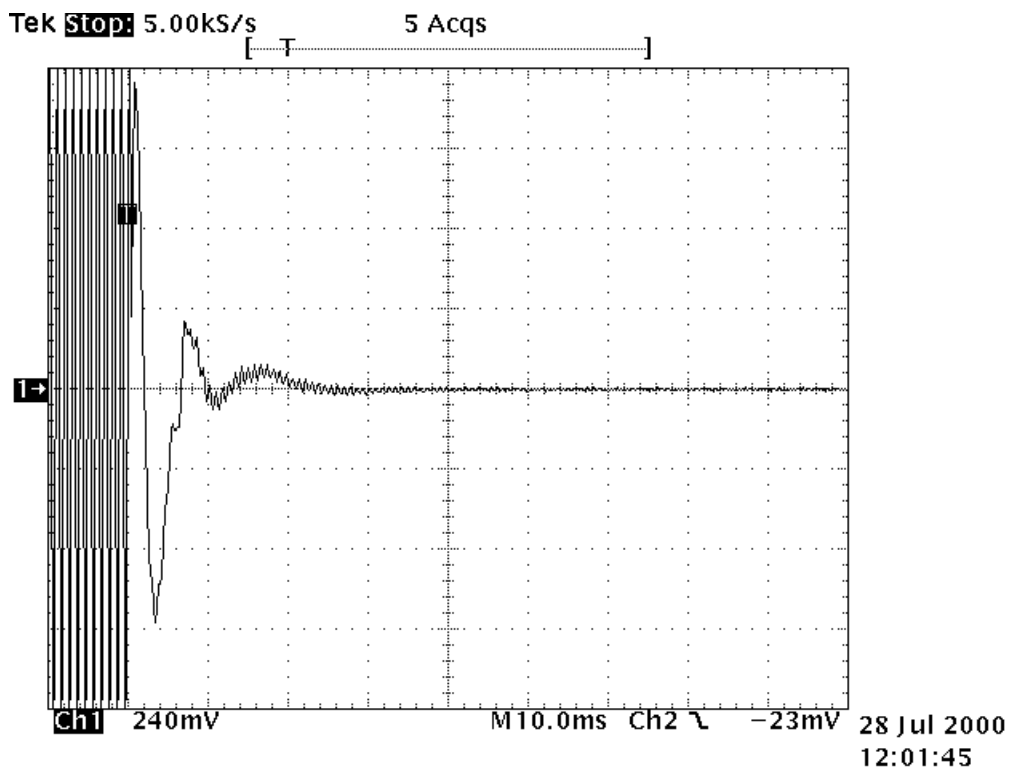


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9.2.4 CARRIER ON TIME:

9.2.4.1 CHANNEL 1 : 440.025 MHZ NB(12.5KHZ) HIGH POWER: 40 W RATED

RF Signal Generator: Modulation 12.5kHz deviation



Timebase: 10 ms/div

Trigger: On negative edge of Ch2, level -23mV

Ch1: 240 mV/div, Probe 1.000:1

Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



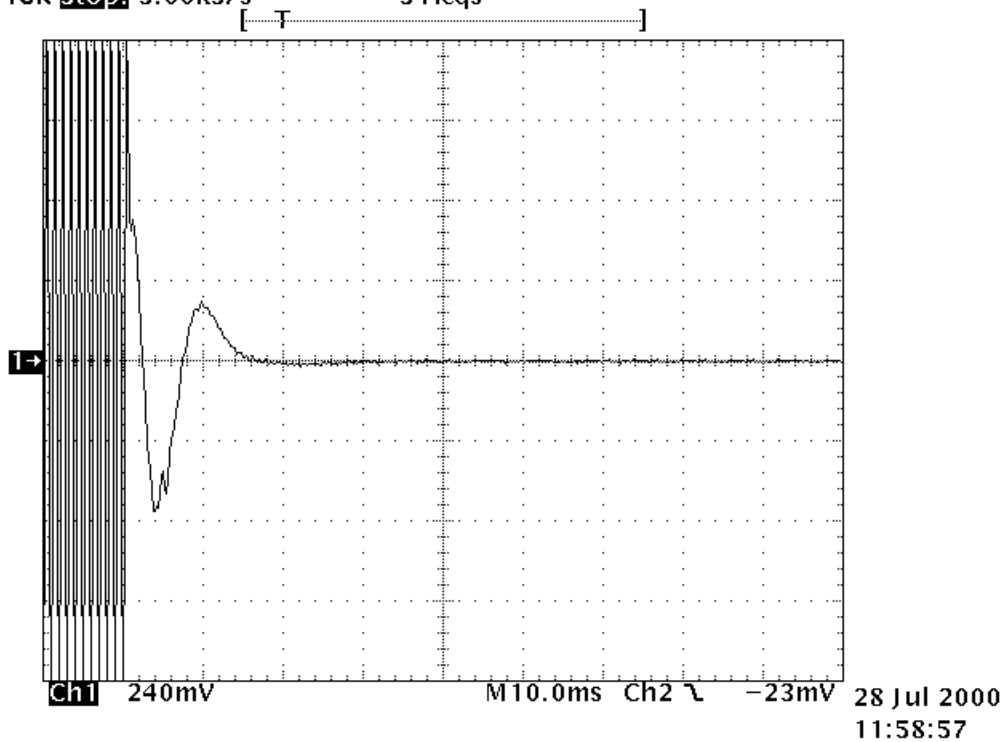
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9.2.4.2 CHANNEL 2 : 455.025 MHZ NB(12.5KHZ) HIGH POWER: 40 W RATED

RF Signal Generator: Modulation 12.5kHz deviation

Tek Stop: 5.00kS/s

3 Acqs



Timebase: 10 ms/div

Trigger: On negative edge of Ch2, level -23mV

Ch1: 240mV/div, Probe 1.000:1

Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



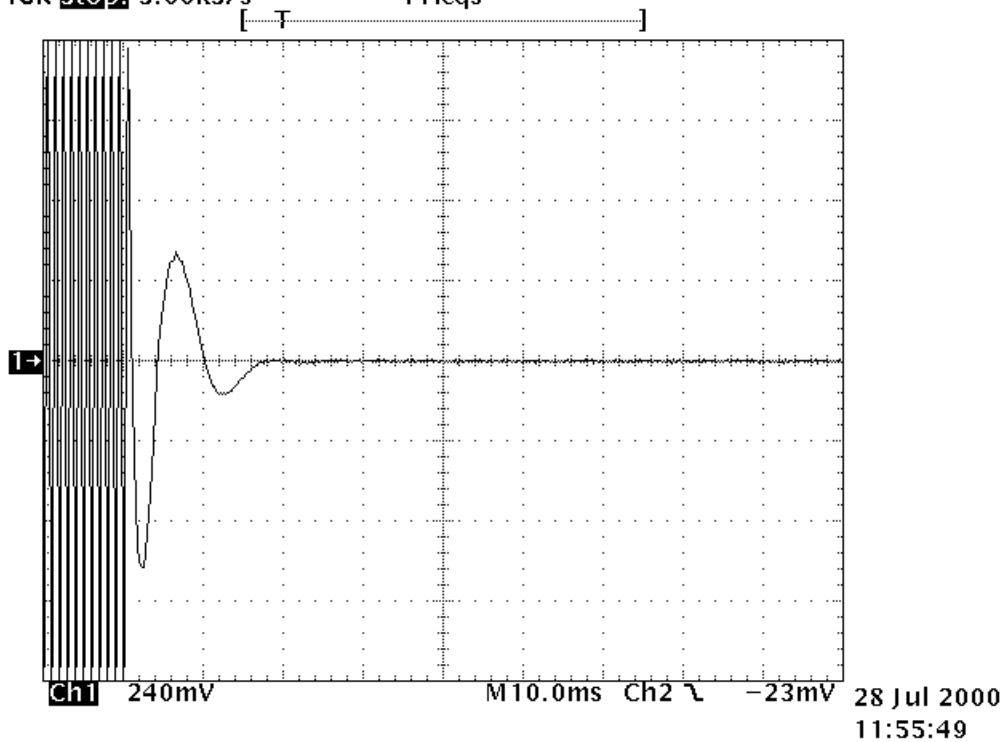
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9.2.4.3 CHANNEL 3 : 470.025 MHZ NB(12.5KHZ) HIGH POWER: 40 W RATED

RF Signal Generator: Modulation 12.5kHz deviation

Tek Stop: 5.00KS/s

4 Acqs



Timebase: 10 ms/div

Trigger: On negative edge of Ch2, level -23mV

Ch1: 240mV/div, Probe 1.000:1

Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



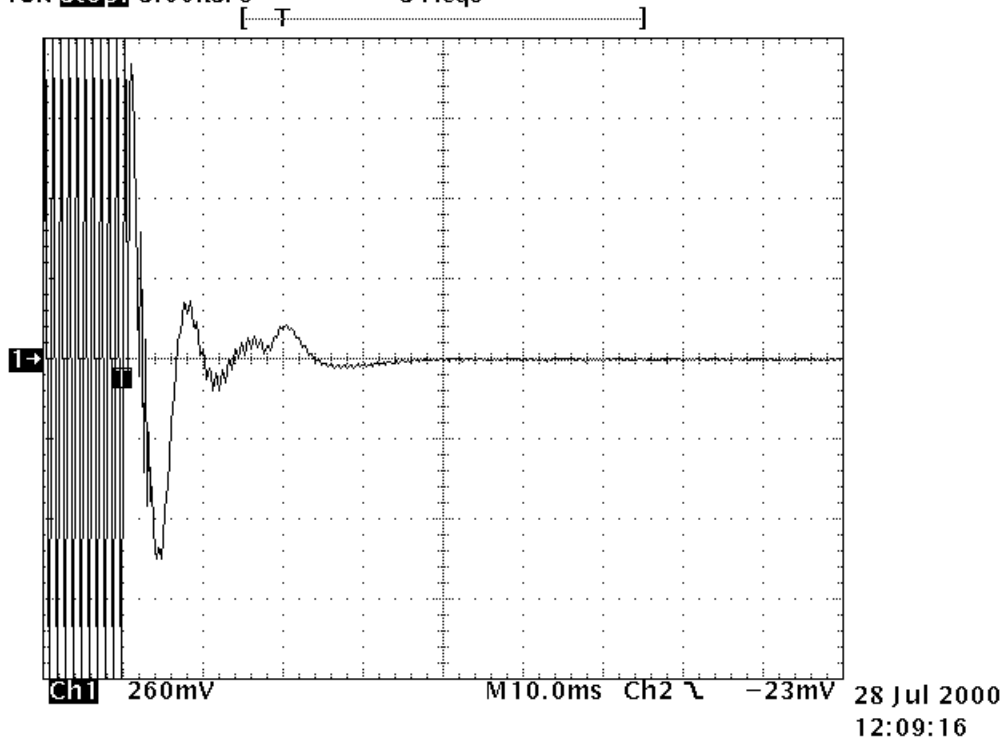
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9.2.4.4 CHANNEL 4 : 440.025 MHZ NB(12.5KHZ) HIGH POWER: 10 W RATED

RF Signal Generator: Modulation 12.5kHz deviation

Tek Stop: 5.00kS/s

3 Acqs



Timebase: 10 ms/div

Trigger: On negative edge of Ch2, level -23mV

Ch1: 260 mV/div, Probe 1.000:1

Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



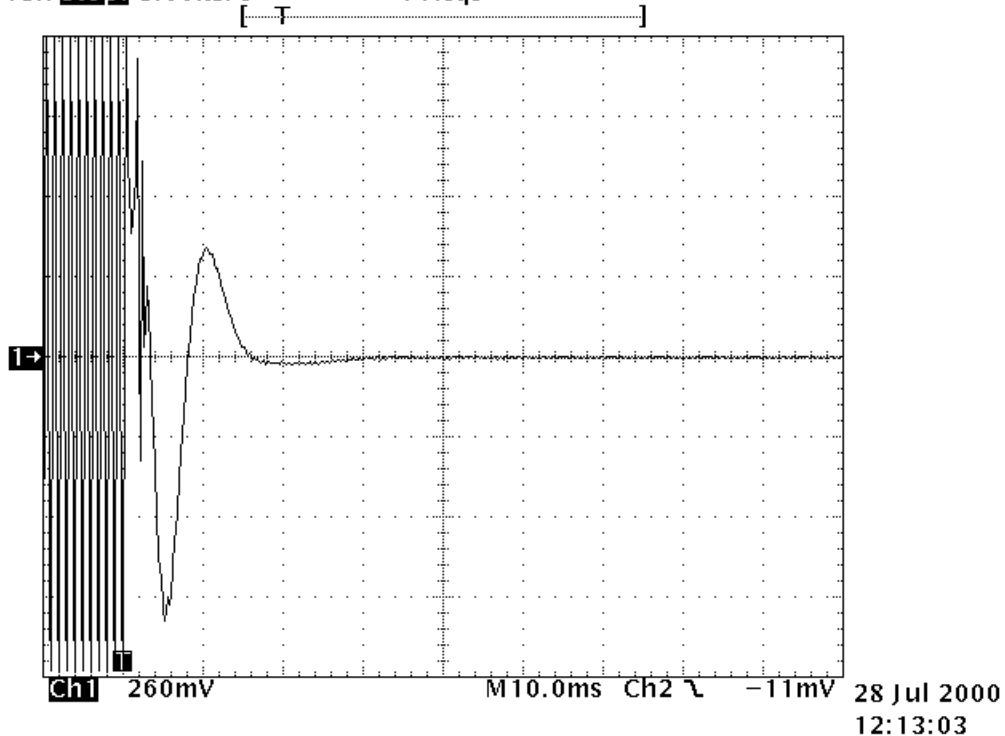
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9.2.4.5 CHANNEL 5 : 455.025 MHZ NB(12.5KHZ) HIGH POWER: 10 W RATED

RF Signal Generator: Modulation 12.5kHz deviation

Tek Stop: 5.00kS/s

1 Acqs



Timebase: 10 ms/div

Trigger: On negative edge of Ch2, level -11mV

Ch1: 260 mV/div, Probe 1.000:1

Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz



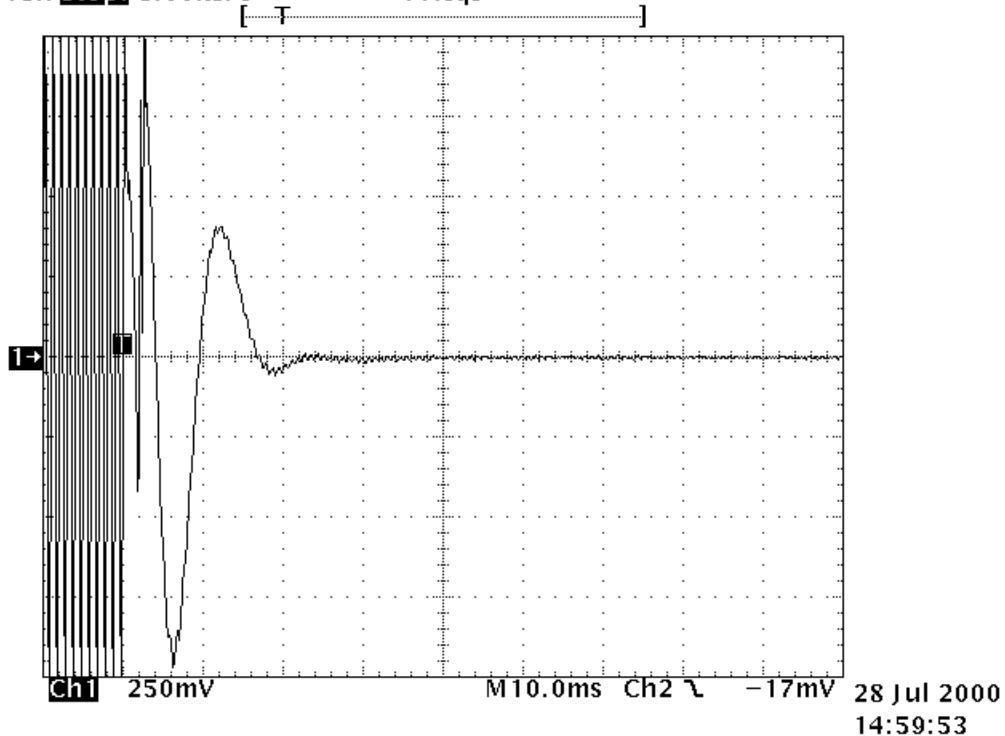
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9.2.4.6 CHANNEL 6 : 470.025 MHZ NB(12.5KHZ) HIGH POWER: 10 W RATED

RF Signal Generator: Modulation 12.5kHz deviation

Tek Stop: 5.00KS/s

4 Acqs



Timebase: 10 ms/div

Trigger: On negative edge of Ch2, level -17mV

Ch1: 250 mV/div, Probe 1.000:1

Vertical scale: +/- 4 div. corresponds to +/- 12.5 kHz