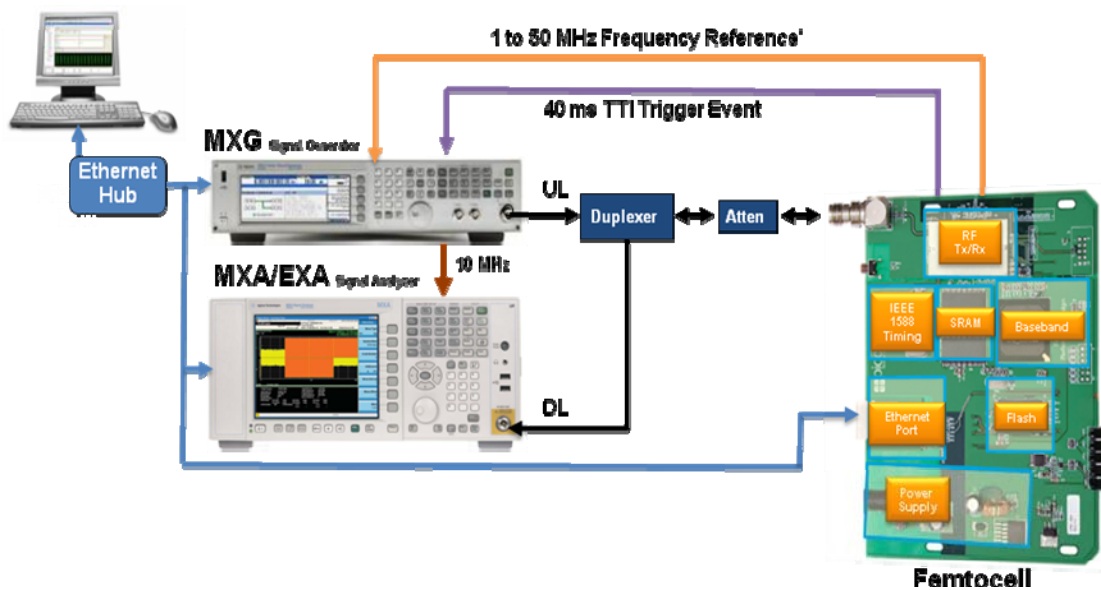


# BER Testing using the MXG and RMC12.2k

5/3/09

## Procedure

1. Setup Physical Connection as illustrated in the diagram below:



- a. For BER synchronization you will need a trigger signal from the BTS/Femtocell. One of the following signal types will work: TTI, SFN or CFN. In the case of RMC12.2k a TTI of 40 ms or greater is required to enable proper decoding of the DTCH transport channel.
  - b. You must also share a common reference between the MXG and the BTS. In this case the MXG has a flexible reference input and can accept anything between 1 MHz and 50 MHz.
  - c. Connect the RF output from MXG to BTS/Femtocell.
2. Initialize MXG and BTS for BER measurement
    - a. Run factory preset on MXG (Green Button)
    - b. Set MXG for expected external reference input frequency (or use default 10 MHz reference)

FREQUENCY	<b>RF OFF</b>	Ref Oscillator
6.000 000 000 00 GHz	-144.00 dBm	Ref Oscillator Source (Auto)
External Ref Frequency: 19.200 000 0 MHz		Ref Oscillator Ext Freq 19.2000000 MHz
		Ref Oscillator Ext Bandwidth Narrow <b>Hide</b>
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c. Setup MXG RF frequency and power level (make sure RF output is off)

FREQUENCY	<b>RF OFF</b>	Frequency
2.100 000 000 00 GHz	-70.00 dBm	Freq Ref Set 0.00 Hz
Freq: 2.100 000 000 00 GHz	Incr: 100.00000kHz	Freq Ref <b>Off</b> On
		Freq Offset 0.00 Hz
		Freq Multiplier 1.000 x
		Freq Channels
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d. Select/Load RMC12.2k waveform and make sure ARB is off (This should be pre-calculated and stored in the MXG from the N7600B)

FREQUENCY	<b>RF OFF</b>	Arb
6.000 000 000 00 GHz	-144.00 dBm	ARB <b>Off</b> On
ARB Off	Selected Waveform: WFM1:RMC12.2K	Select Waveform
	Arb Sample Clock: 3.840000000MHz	Arb Setup
	Filter: WCDMA	Trigger Type (Continuous, Trigger & Run)
	Trig Type: Continuous (Trigger & Run)	Ext Polarity: Pos
	Trig Source: Ext (Patt Trig In 1)	Delay: 267.304000usec
	Power Search Reference: Fixed	Trigger Source (Ext)
	AWGN: Off	Phase Noise: Off
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e. Setup trigger:

- a. Trigger type: continuous, trigger & run
  - b. Setup trigger polarity: pos
  - c. Setup trigger delay to on
  - d. Setup Delay range in 267.3us ~ 270us (depends on BTS design, usually +/- 5 chip window. My require tuning one chip at a time)
- Note: The uplink signal for W-CDMA is offset by 1024 chips relative to the downlink TTI clock therefore you must enter this amount of delay in the MXG.

FREQUENCY		RF OFF	Arb
6.000 000 000 00 GHz		-144.00 dBm	ARB Off On
ARB Off	Selected Waveform: WFM1:RMC12.2K		Select Waveform
	Arb Sample Clock: 3.840000000MHz Filter: WCDMA		Arb Setup
	Trig Type: Continuous (Trigger & Run)	Ext Polarity: Pos	Trigger Type (Continuous Trigger & Run)
	Trig Source: Ext (Patt Trig In 1)	Delay: 267.304000usec	Trigger Source (Ext)
	Power Search Reference: Fixed	Phase Noise: Off	
	ALIGN: Off		
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- f. Initial DUT's BER & BLER measure (keep on standby, not run)
- g. Turn on ARB waveform generator
- h. Execute DUT BER/BLER measure & get BER/BLER result.

## RMC 12.2k Waveform generation and download

1. Generate and download RMC12.2k waveform with the N7600B Signal Studio for W-CDMA FDD.
  - a. Select uplink advanced carrier (N7600B-QFP option)
  - b. Select RMC 12.2k from the predefined setup in the drop down menu. (Default is RMC 12.2k)
  - c. Change the default label from “Untitled” to a suitable name for recall later like “RMC12.2k”
  - d. In carrier view confirm that real-time modulation filter is turned on. \* (requires FW version A.01.50 or greater.)
  - e. Set the number of frame to 1022. This enables a continuous PN9 in the DTCH logic channel in the transport layer of the DPDCH.
  - f. Generate and download waveform. (This will take approximately 20 minutes to calculate and download the waveform into the instrument)
  - g. Store the waveform into the MXG’s non volatile memory for future recall. This will save time by not re-calculating the waveform

