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Appendix F

Frequency Stability Measurements

According to CFR 47 (FCC) part 2.1055

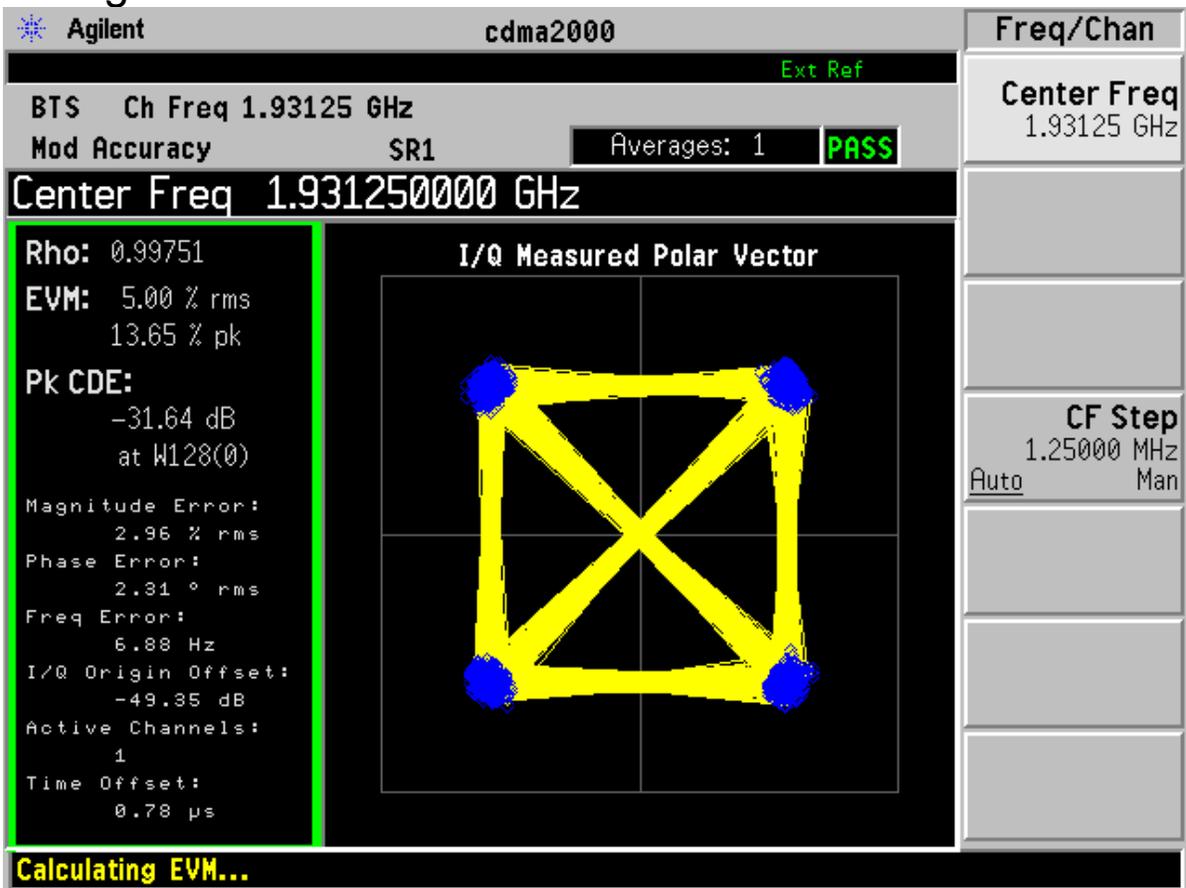
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Frequency Stability versus Voltage

TRX1: Channel No. 25(1931.25MHz)

Voltage= - 40.8V



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Voltage= - 48V

Agilent cdma2000

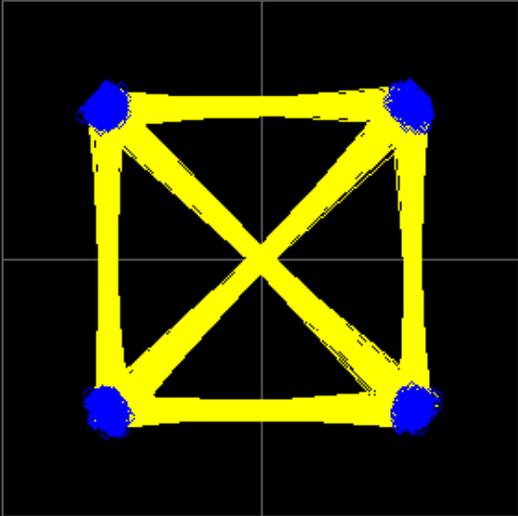
BTS Ch Freq 1.93125 GHz
Mod Accuracy SR1 Averages: 2 **PASS** Ext Ref

Avg Number 10

Rho: 0.99789
EVM: 4.60 % rms
12.14 % pk
Pk CDE:
-32.98 dB
at W128(0)

Magnitude Error: 2.92 % rms
Phase Error: 2.04 ° rms
Freq Error: -1.79 Hz
I/Q Origin Offset: -49.64 dB
Active Channels: 1
Time Offset: 0.68 µs

I/Q Measured Polar Vector



Meas Setup

Avg Number 10
On Off

Avg Mode Repeat
Exp

Limits

Trig Source Ext Rear

More 1 of 2

Initial timing compensation...

Voltage= - 55.2V

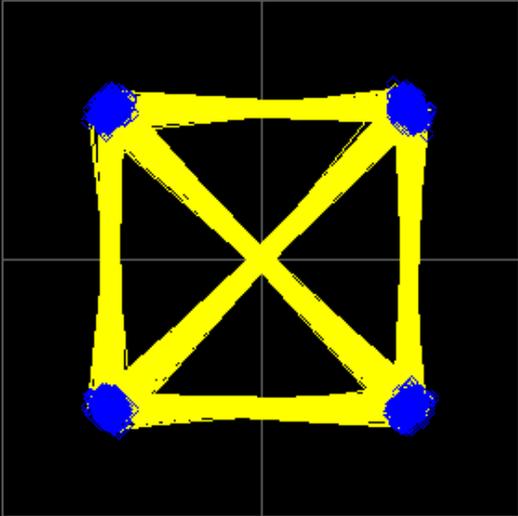
Agilent cdma2000

BTS Ch Freq 1.93125 GHz
Mod Accuracy SR1 Averages: 4 **PASS** Ext Ref

Avg Number 10

Rho: 0.99761
EVM: 4.89 % rms
14.55 % pk
Pk CDE:
-29.89 dB
at W128(0)
Magnitude Error:
2.92 % rms
Phase Error:
2.25 ° rms
Freq Error:
9.52 Hz
I/Q Origin Offset:
-49.40 dB
Active Channels:
1
Time Offset:
0.77 µs

I/Q Measured Polar Vector



Meas Setup

Avg Number 10
On Off

Avg Mode
Exp Repeat

Limits

Trig Source
Ext Rear

More
1 of 2

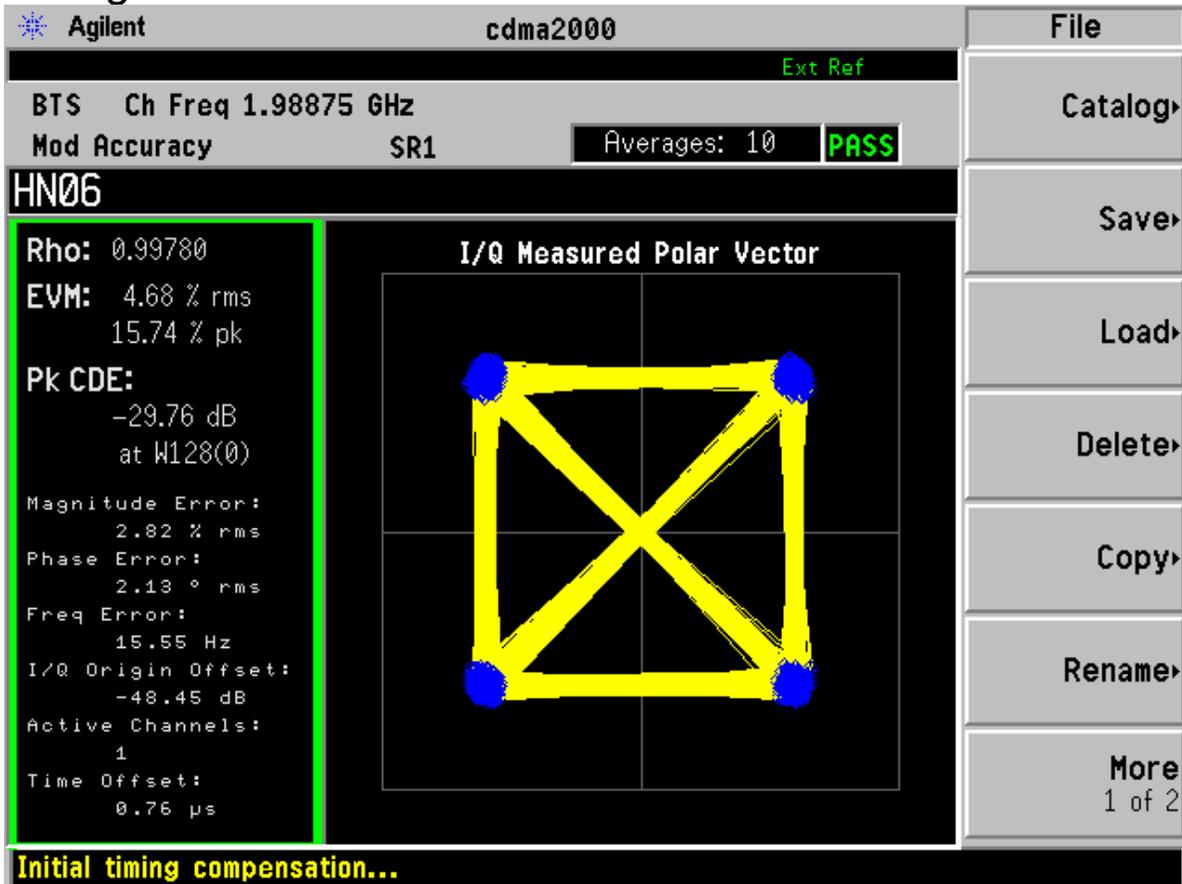
Initial timing compensation...

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TRX2: Channel No. 1175(1988.75MHz)

Voltage= - 40.8V



Agilent cdma2000 Ext Ref

BTS Ch Freq 1.98875 GHz
Mod Accuracy SR1 Averages: 10 **PASS**

HN06

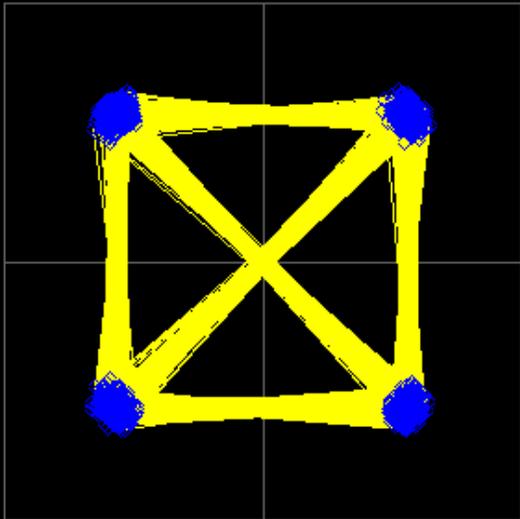
Rho: 0.99780
EVM: 4.68 % rms
15.74 % pk
Pk CDE:
-29.76 dB
at W128(0)
Magnitude Error:
2.82 % rms
Phase Error:
2.13 ° rms
Freq Error:
15.55 Hz
I/Q Origin Offset:
-48.45 dB
Active Channels:
1
Time Offset:
0.76 µs

I/Q Measured Polar Vector

File
Catalog
Save
Load
Delete
Copy
Rename
More
1 of 2

Initial timing compensation...

Voltage= - 48V

Agilent		cdma2000	File
		Ext Ref	
BTS	Ch Freq	1.98875 GHz	Catalog>
Mod Accuracy	SR1	PASS	
LM28			
Rho:	0.99766		
EVM:	4.85 % rms 12.92 % pk		
Pk CDE:	-32.42 dB at W128(0)		
Magnitude Error:	2.92 % rms		
Phase Error:	2.22 ° rms		
Freq Error:	-3.76 Hz		
I/Q Origin Offset:	-49.65 dB		
Active Channels:	1		
Time Offset:	-0.39 µs		
		I/Q Measured Polar Vector	
			
			Save>
			Load>
			Delete>
			Copy>
			Rename>
			More 1 of 2
Initial timing correction...			

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Voltage= - 55.2V

Agilent cdma2000

Ext Ref

BTS Ch Freq 1.98875 GHz

Mod Accuracy SR1 **PASS**

Avg Number 10

Rho: 0.99707

EVM: 5.42 % rms
14.97 % pk

Pk CDE:
-30.21 dB
at W128(0)

Magnitude Error:
2.93 % rms

Phase Error:
2.61 ° rms

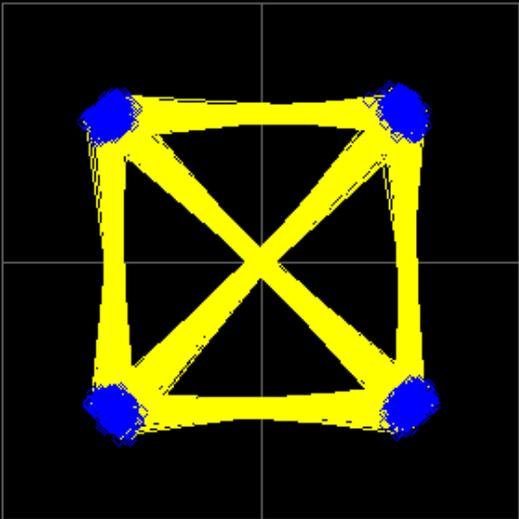
Freq Error:
-1.62 Hz

I/Q Origin Offset:
-49.90 dB

Active Channels:
1

Time Offset:
-0.39 µs

I/Q Measured Polar Vector



Meas Setup

Avg Number 10
On Off

Avg Mode Exp Repeat

Limits

Trig Source Ext Rear

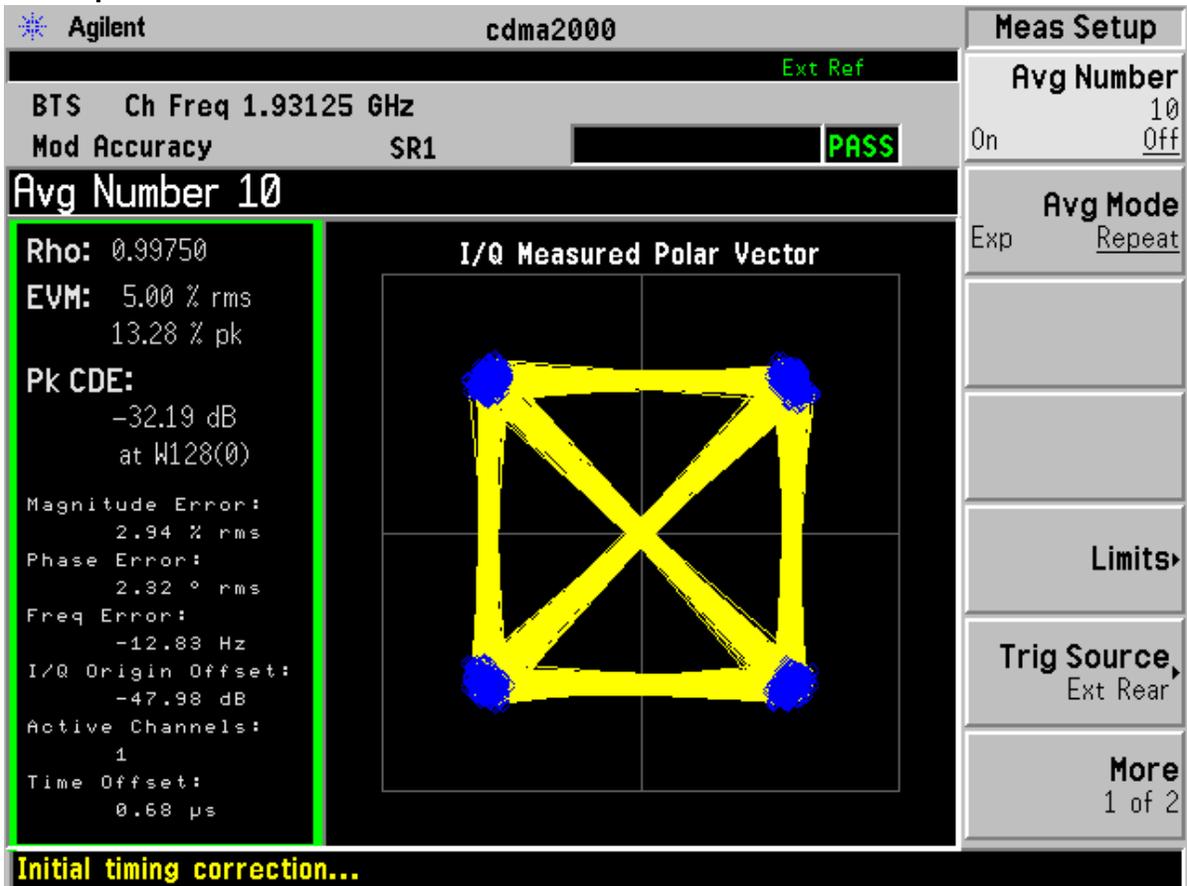
More 1 of 2

Secondary timing estimation...

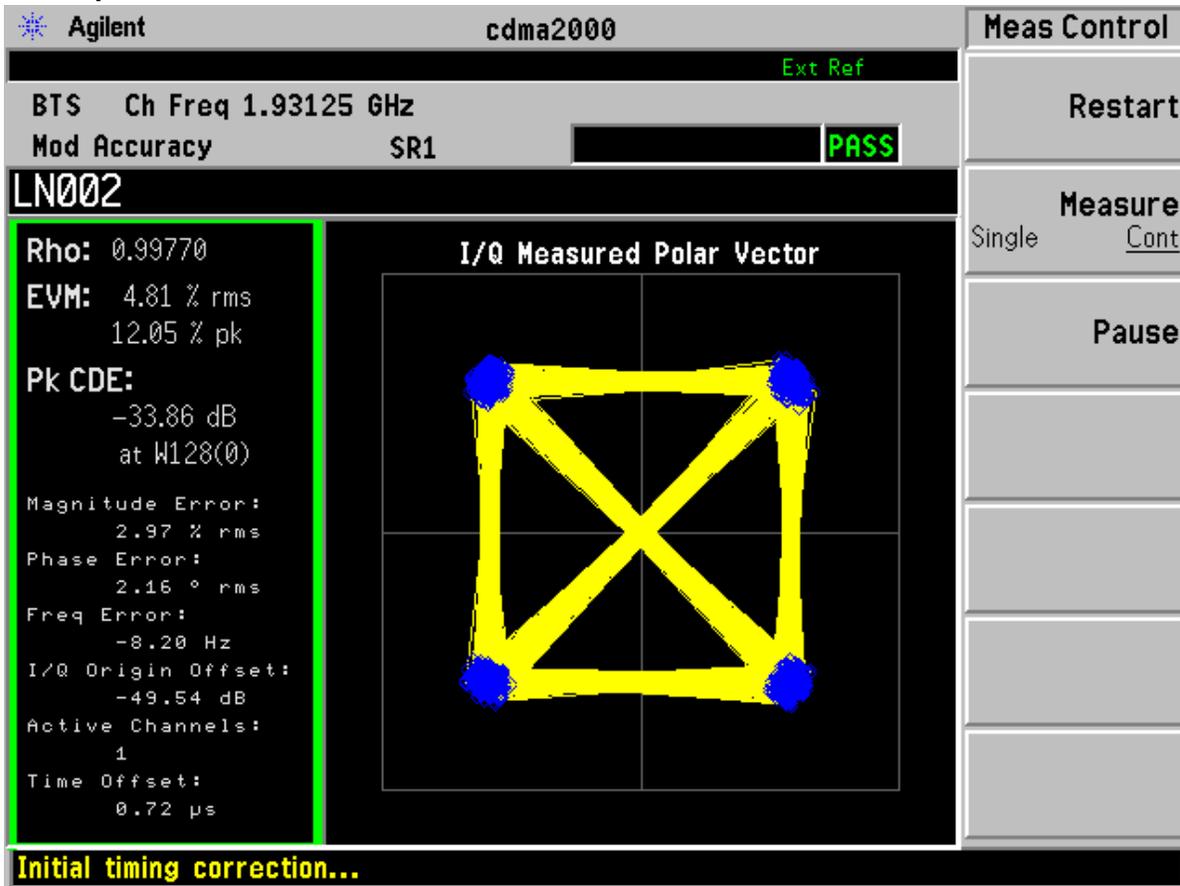
Frequency Stability versus Temperature

TRX1: Channel No. 25(1931.25MHz)

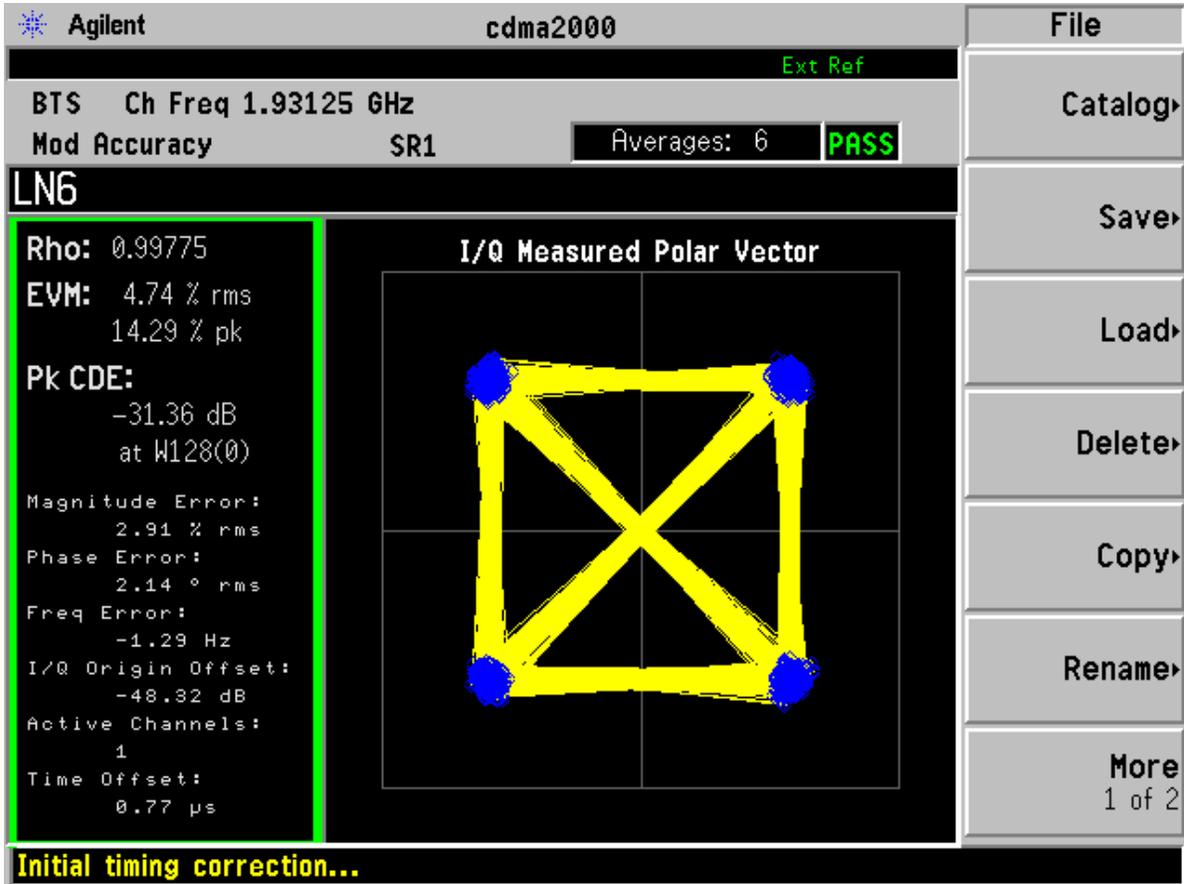
Temperature = - 30°C



Temperature = - 20°C



Temperature = - 10°C



Agilent cdma2000

Ext Ref

BTS Ch Freq 1.93125 GHz

Mod Accuracy SR1 Averages: 6 **PASS**

LNG

Rho: 0.99775

EVM: 4.74 % rms
14.29 % pk

Pk CDE:
-31.36 dB
at W128(0)

Magnitude Error:
2.91 % rms

Phase Error:
2.14 ° rms

Freq Error:
-1.29 Hz

I/Q Origin Offset:
-48.82 dB

Active Channels:
1

Time Offset:
0.77 µs

I/Q Measured Polar Vector

File

Catalog

Save

Load

Delete

Copy

Rename

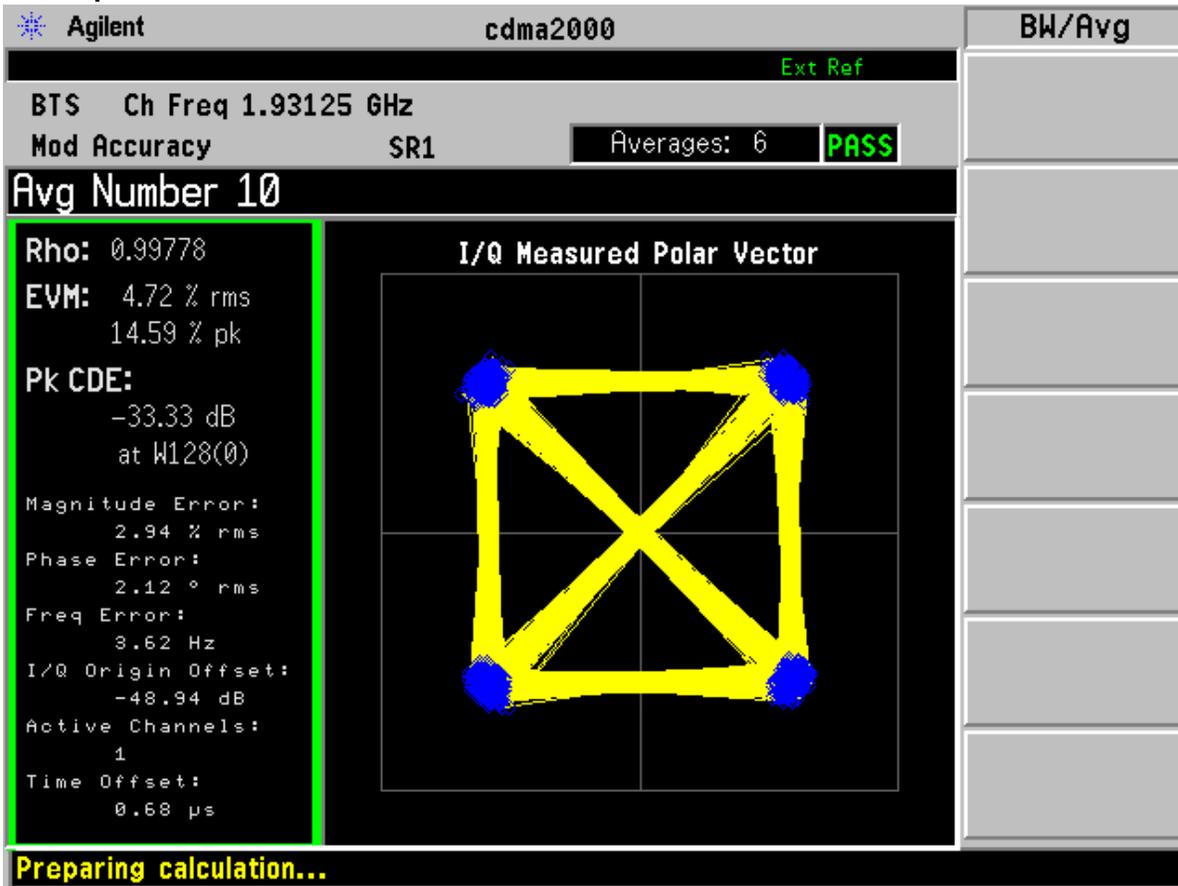
More
1 of 2

Initial timing correction...

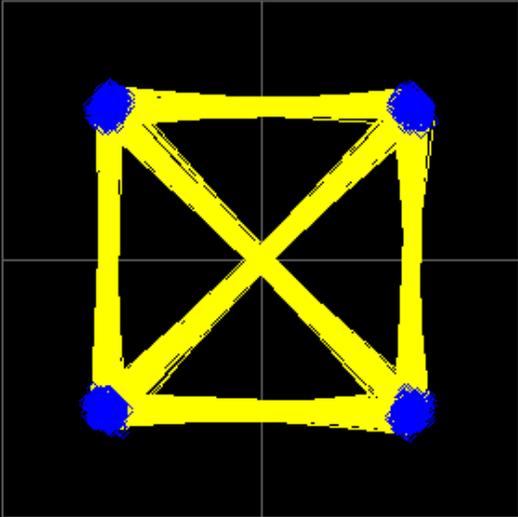
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Temperature = 0°C



Temperature = 10°C

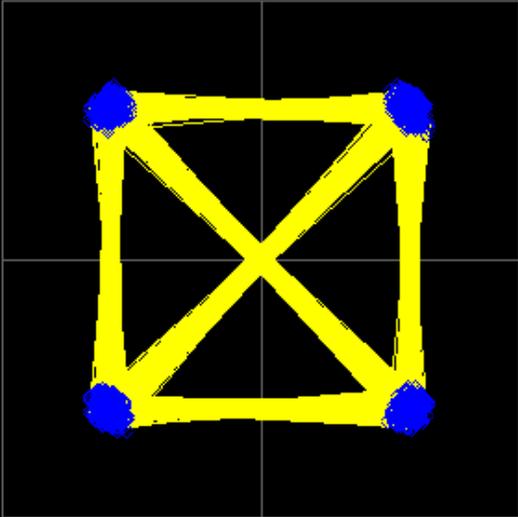
* Agilent		cdma2000	Meas Setup
		Ext Ref	Avg Number
BTS	Ch Freq	1.93125 GHz	10
Mod Accuracy	SR1	Averages: 2	On Off
Avg Number 10		PASS	Avg Mode
Rho: 0.99788			Exp Repeat
EVM: 4.61 % rms			Limits
11.98 % pk			Trig Source
Pk CDE:			Ext Rear
-34.21 dB			More
at W128(0)			1 of 2
Magnitude Error:			
2.92 % rms			
Phase Error:			
2.04 ° rms			
Freq Error:			
-0.04 Hz			
I/Q Origin Offset:			
-49.31 dB			
Active Channels:			
1			
Time Offset:			
0.68 µs			
Preparing calculation...			

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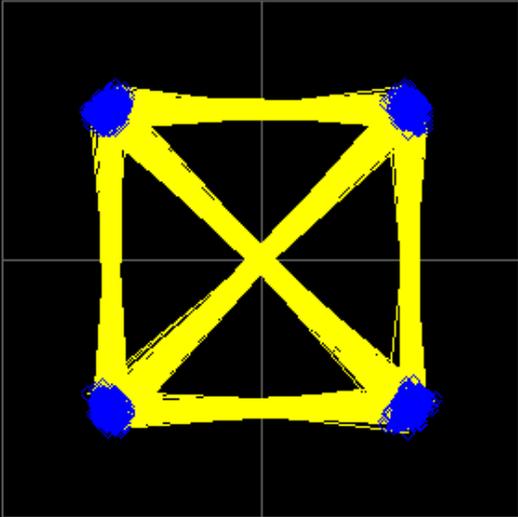
Temperature = 20°C

* Agilent		cdma2000	Measure
		Ext Ref	
BTS Ch Freq 1.93125 GHz			Channel Power
Mod Accuracy	SR1	Averages: 4	PASS
Rho: 0.99770		ACPR	
EVM: 4.80 % rms 15.12 % pk		Intermod	
Pk CDE: -31.03 dB at W128(0)		Spectrum Emission Mask	
Magnitude Error: 2.94 % rms		Occupied BW	
Phase Error: 2.17 ° rms		More	
Freq Error: -0.31 Hz		1 of 2	
I/Q Origin Offset: -50.15 dB			
Active Channels: 1			
Time Offset: 3.94 µs			
Preparing calculation...			



Temperature = 30°C

* Agilent		cdma2000	Meas Setup
		Ext Ref	Avg Number
BTS	Ch Freq	1.93125 GHz	10
Mod Accuracy	SR1	Averages: 5	Off
		PASS	Avg Mode
			Exp Repeat
			Limits
			Trig Source
			Ext Rear
			More
			1 of 2

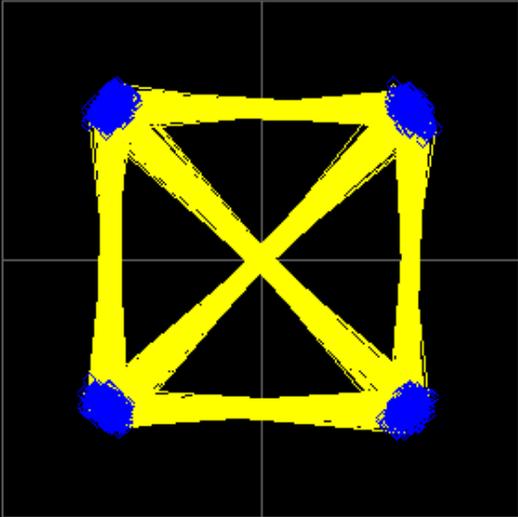
Rho: 0.99759	I/Q Measured Polar Vector 
EVM: 4.91 % rms	
14.75 % pk	
Pk CDE:	
-30.91 dB	
at W128(0)	
Magnitude Error:	
2.94 % rms	
Phase Error:	
2.26 ° rms	
Freq Error:	
-4.23 Hz	
I/Q Origin Offset:	
-49.86 dB	
Active Channels:	
1	
Time Offset:	
0.78 µs	

Calculating EVM...

Temperature = 40°C

* Agilent		cdma2000	Meas Setup
		Ext Ref	Avg Number
BTS	Ch Freq	1.93125 GHz	10
Mod Accuracy	SR1	PASS	On Off
Avg Number 10			Avg Mode
Rho:	0.99714		Exp Repeat
EVM:	5.36 % rms 14.43 % pk		
Pk CDE:	-31.30 dB at W128(0)		
Magnitude Error:	2.98 % rms		
Phase Error:	2.57 ° rms		
Freq Error:	17.51 Hz		
I/Q Origin Offset:	-49.11 dB		Limits
Active Channels:	1		Trig Source Ext Rear
Time Offset:	0.77 µs		More 1 of 2

I/Q Measured Polar Vector



Initial timing compensation...

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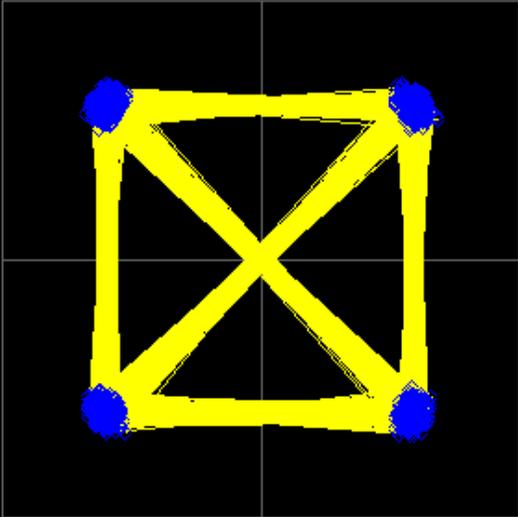
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Temperature = 50°C

* Agilent		cdma2000	Measure
		Ext Ref	
BTS Ch Freq 1.93125 GHz			Channel Power
Mod Accuracy SR1		PASS	
			ACPR
			Intermod
			Spectrum Emission Mask
			Occupied BW
			More 1 of 2

Rho: 0.99755
EVM: 4.96 % rms
13.34 % pk
Pk CDE:
-32.06 dB
at W128(0)
Magnitude Error:
2.98 % rms
Phase Error:
2.27 ° rms
Freq Error:
22.21 Hz
I/Q Origin Offset:
-51.17 dB
Active Channels:
1
Time Offset:
0.73 µs

I/Q Measured Polar Vector

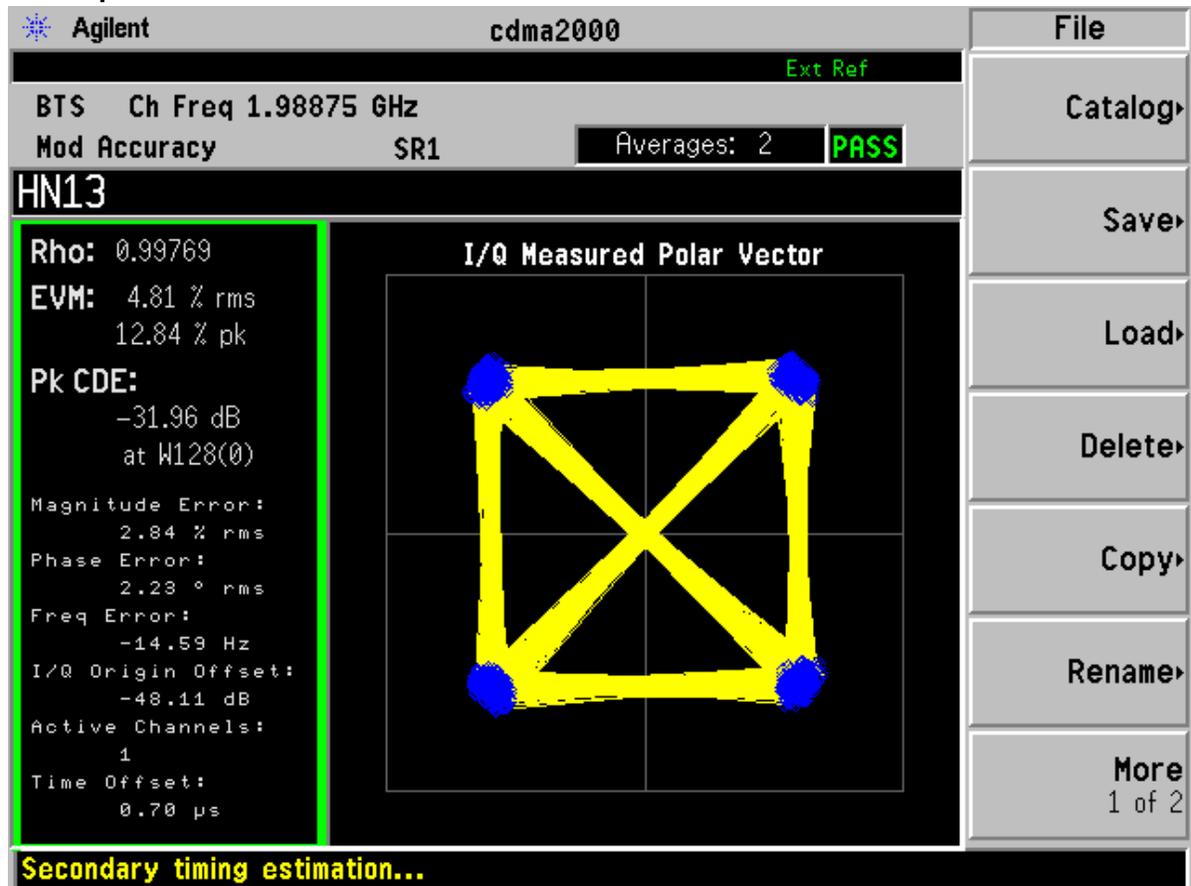


Calculating power...

Frequency Stability versus Temperature

TRX1: Channel No. 1175(1988.75MHz)

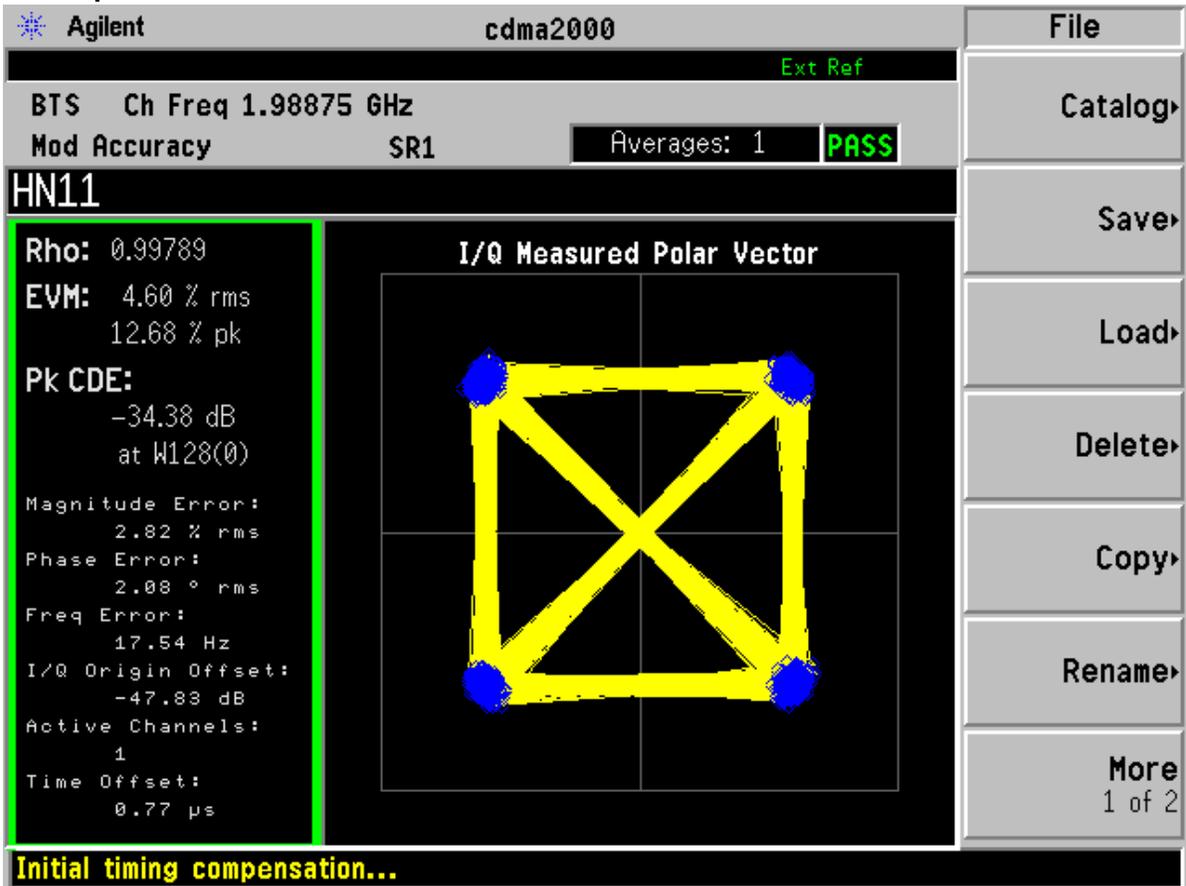
Temperature = - 30°C



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Temperature = - 20°C



Agilent cdma2000 Ext Ref

BTS Ch Freq 1.98875 GHz
Mod Accuracy SR1 Averages: 1 **PASS**

HN11

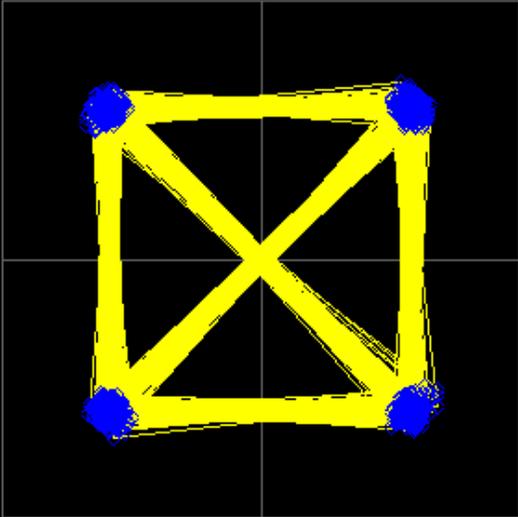
Rho: 0.99789
EVM: 4.60 % rms
12.68 % pk
Pk CDE:
-34.38 dB
at W128(0)
Magnitude Error:
2.82 % rms
Phase Error:
2.08 ° rms
Freq Error:
17.54 Hz
I/Q Origin Offset:
-47.83 dB
Active Channels:
1
Time Offset:
0.77 µs

I/Q Measured Polar Vector

File
Catalog
Save
Load
Delete
Copy
Rename
More
1 of 2

Initial timing compensation...

Temperature = - 10°C

* Agilent cdma2000		File
Ext Ref		
BTS Ch Freq 1.98875 GHz		Catalog>
Mod Accuracy SR1	Averages: 4 PASS	
RS1175N01		Save>
Rho: 0.99756	I/Q Measured Polar Vector 	Load>
EVM: 4.94 % rms 15.51 % pk		Delete>
Pk CDE: -29.94 dB at W128(0)		Copy>
Magnitude Error: 2.92 % rms		Rename>
Phase Error: 2.28 ° rms		More 1 of 2
Freq Error: -4.72 Hz		
I/Q Origin Offset: -47.68 dB		
Active Channels: 1		
Time Offset: 0.72 µs		
Preparing calculation...		

Temperature = 0°C

* Agilent 16:51:49 Aug 26, 2003 cdma2000 Ext Ref

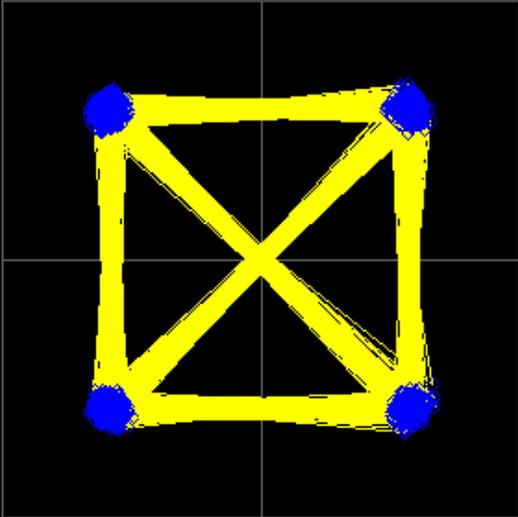
BTS Ch Freq 1.98875 GHz
Mod Accuracy SR1 Averages: 2 **PASS**

RS75N01

Rho: 0.99784
EVM: 4.66 % rms
15.10 % pk
Pk CDE:
-33.65 dB
at W128(0)

Magnitude Error:
2.93 % rms
Phase Error:
2.08 ° rms
Freq Error:
-2.35 Hz
I/Q Origin Offset:
-47.27 dB
Active Channels:
1
Time Offset:
0.72 µs

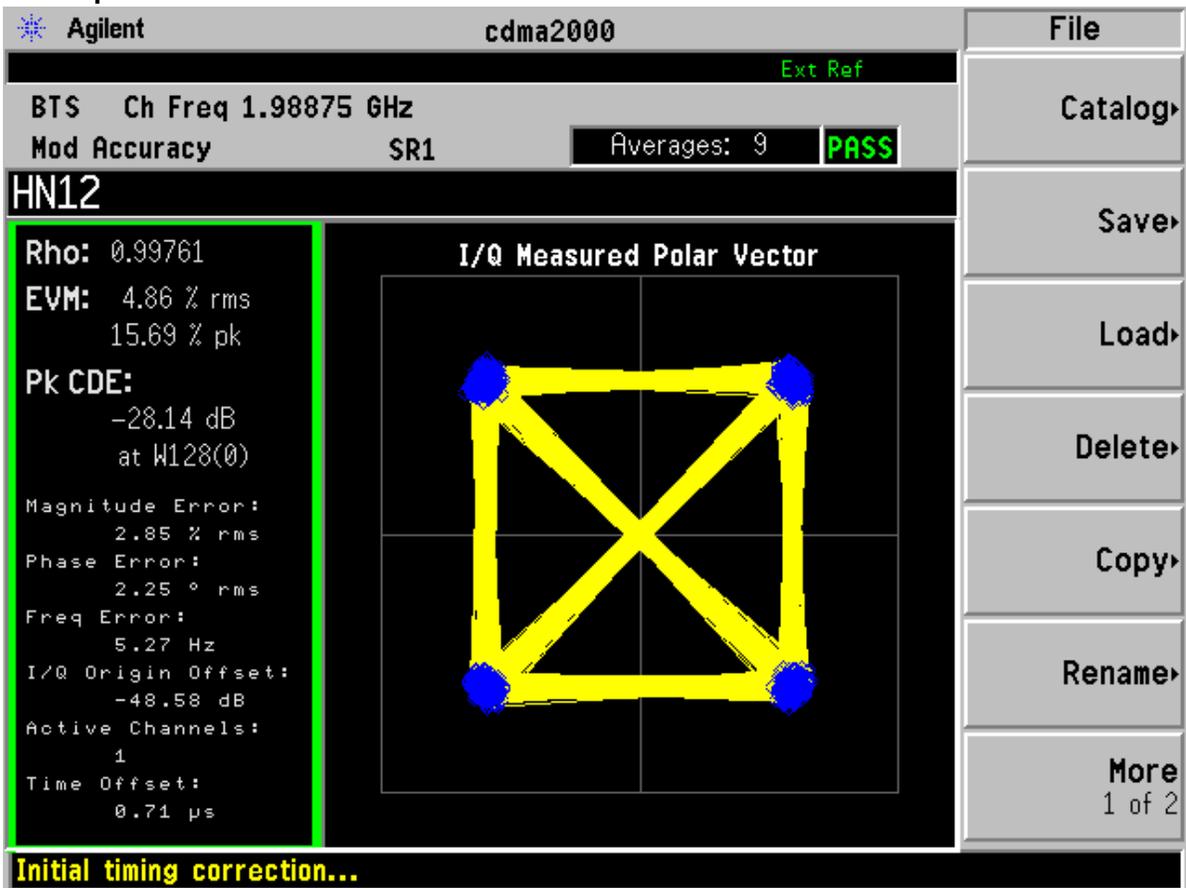
I/Q Measured Polar Vector



File
Catalog>
Save>
Load>
Delete>
Copy>
Rename>
More
1 of 2

Initial timing compensation...

Temperature = 10°C



Agilent cdma2000 Ext Ref

BTS Ch Freq 1.98875 GHz
Mod Accuracy SR1 Averages: 9 **PASS**

HN12

Rho: 0.99761
EVM: 4.86 % rms
15.69 % pk
Pk CDE:
-28.14 dB
at W128(0)

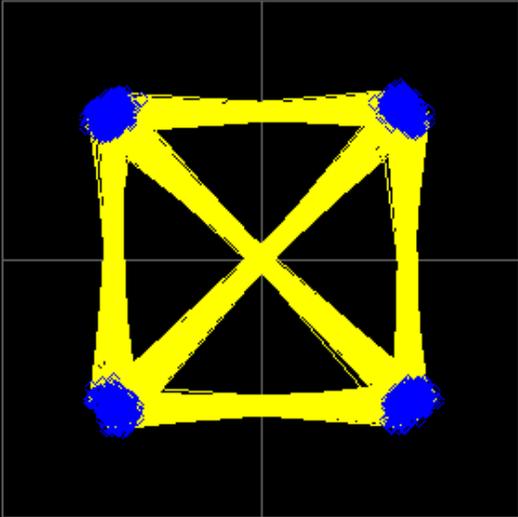
Magnitude Error:
2.85 % rms
Phase Error:
2.25 ° rms
Freq Error:
5.27 Hz
I/Q Origin Offset:
-48.58 dB
Active Channels:
1
Time Offset:
0.71 µs

I/Q Measured Polar Vector

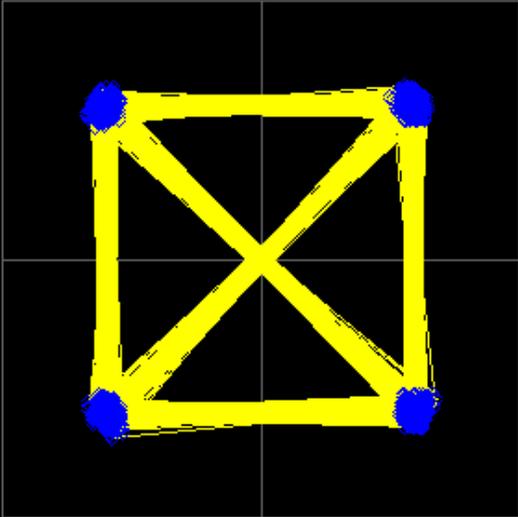
File
Catalog
Save
Load
Delete
Copy
Rename
More
1 of 2

Initial timing correction...

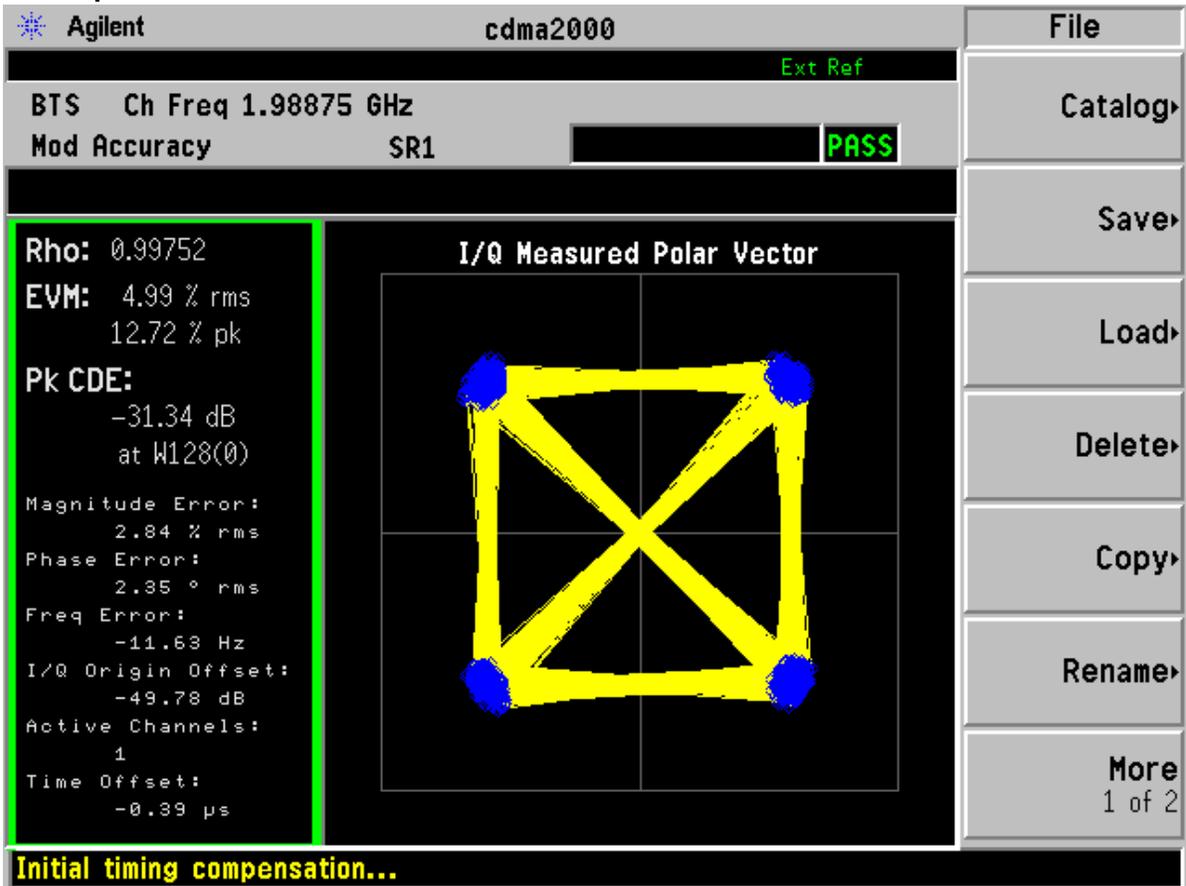
Temperature = 20°C

* Agilent		cdma2000	Meas Setup
		Ext Ref	Avg Number
BTS	Ch Freq	1.98875 GHz	10
Mod Accuracy	SR1	Averages: 7	Off
Avg Number 10		PASS	Avg Mode
Rho: 0.99721			Exp Repeat
EVM: 5.27 % rms			Limits
15.68 % pk			Trig Source
Pk CDE:			Ext Rear
-28.05 dB			More
at W128(0)			1 of 2
Magnitude Error:			
2.94 % rms			
Phase Error:			
2.50 ° rms			
Freq Error:			
0.37 Hz			
I/Q Origin Offset:			
-48.08 dB			
Active Channels:			
1			
Time Offset:			
-0.40 µs			
Initial timing correction...			

Temperature = 30°C

* Agilent		cdma2000	File
		Ext Ref	
BTS	Ch Freq	1.98875 GHz	Catalog>
Mod Accuracy	SR1	Averages: 1	PASS
HNB			
Rho:	0.99807		
EVM:	4.40 % rms 11.64 % pk		
Pk CDE:	-37.13 dB at W128(0)		
Magnitude Error:	2.82 % rms		
Phase Error:	1.93 ° rms		
Freq Error:	8.78 Hz		
I/Q Origin Offset:	-48.61 dB		
Active Channels:	1		
Time Offset:	0.77 µs		
		I/Q Measured Polar Vector	
			
			Save>
			Load>
			Delete>
			Copy>
			Rename>
			More 1 of 2
Preparing calculation...			

Temperature = 40°C



Agilent cdma2000 Ext Ref

BTS Ch Freq 1.98875 GHz
Mod Accuracy SR1 **PASS**

Rho: 0.99752
EVM: 4.99 % rms
12.72 % pk
Pk CDE:
-31.34 dB
at W128(0)
Magnitude Error:
2.84 % rms
Phase Error:
2.35 ° rms
Freq Error:
-11.63 Hz
I/Q Origin Offset:
-49.78 dB
Active Channels:
1
Time Offset:
-0.39 µs

I/Q Measured Polar Vector

File
Catalog
Save
Load
Delete
Copy
Rename
More
1 of 2

Initial timing compensation...

Temperature = 50°C

