E5063A-15

Information Only Service Note

Supersedes:
None

E5063A – ENA Series Network Analyzer

Serial Numbers: ALL
Manufacturing ID Number: N/A

E5063A Dynamic Accuracy specification.

Parts Required:
NA

ADMINISTRATIVE INFORMATION

[X] Calibration Required	PRODUCT LINE: WN
[[]] Calibration NOT Required	AUTHOR: ls

ADDITIONAL INFORMATION:
Improved Dynamic Accuracy specification for E5063A.

KEYSIGHT TECHNOLOGIES

Situation:
Improvements in dynamic accuracy test method were implemented to improve the product specification of dynamic accuracy of E5063A on serial prefix MY542/ SG542 and above.
Hardware wise, they are identical.

1. MY541/ SG541 - Old/ Existing Dynamic Accuracy Test Method (with Dynamic Accuracy Test set – Z5623A-H01)
2. MY542/ SG542 and above - New/ Improved Revised Dynamic Accuracy Test Method (Two tones test - U3020AD01 + Signal generator E8257D)

Solution/Action:

On annual calibration, depending on the Keysight Technologies service center(s)' handling, MY541, SG541 would either be tested with its original specification or with an improved Dynamic Accuracy specification at no additional charge.

E5063A Serial prefix	Dynamic Accuracy test
MY541, SG541	#1. Original specification for MY541, SG541 Tested with original (MY541, SG541) Dynamic Accuracy specification. or #2: Improved specification. Tested with improved (MY542, SG542) Dynamic Accuracy specification.
MY542, SG542 and newer	Tested with improved (MY542, SG542) Dynamic Accuracy specification

Refer to the following for the respective Dynamic Accuracy Specifications

Dynamic Accuracy (Specification) and Group Delay (Typical) comparison.
Source: E5063A data sheet

E5063A Dynamic Accuracy Specification

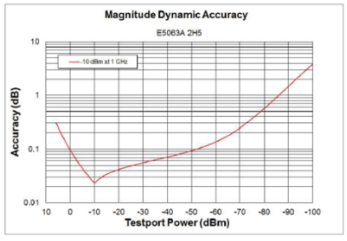
- E5063A MY541, SG541

Dynamic accuracy[1]

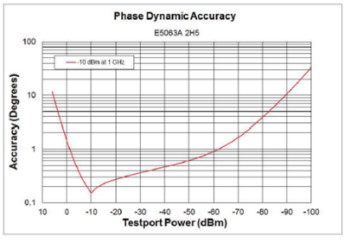
Description	Specification	Typical
Magnitude		
6 dBm	± 0.31 dB	
–30 dBm	± 0.056 dB	
–100 dBm	± 3.83 dB	
–110 dBm		± 5.00 dB
Phase		
6 dBm	± 11.8 deg	
–30 dBm	± 0.37 deg	
–100 dBm	± 33.6 deg	

1. Accuracy of the test port input power reading is relative to –10 dBm reference input power level.

Magnitude



Phase



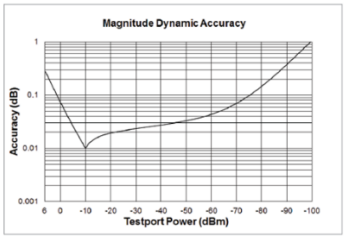
- E5063A MY542, SG542 and above

Dynamic accuracy[1,2]

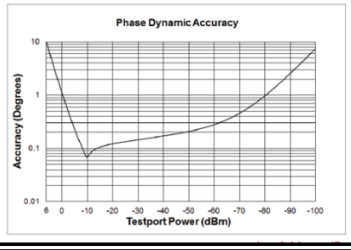
Description	Specification	Typical
Magnitude		
6 dBm	± 0.281 dB	
–30 dBm	± 0.023 dB	
–100 dBm	± 1.070	
–110 dBm		± 3.00 dB
Phase		
6 dBm	± 10.20 deg	
–30 dBm	± 0.15 deg	
–100 dBm	± 7.53 deg	

1. Accuracy of the test port input power reading is relative to –10 dBm reference input power level.
2. Applies to the units with Serial Number Prefix MY542/SG542 and above

Magnitude



Phase



E5063A Group Delay Accuracy (Typical)

- E5063A MY541, SG541

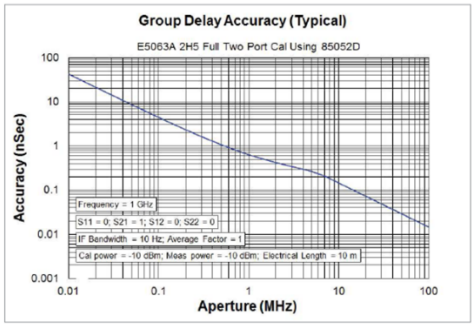
Group delay[1]

Description	Specification	Typical
Aperture (selectable)	(frequency span)/(number of points - 1)	
Maximum aperture	25% of frequency span	
Minimum delay		Limited to measuring no more than 180° of phase change within the minimum aperture.
Accuracy		See graph below (typical)

1. Group delay is computed by measuring the phase change within a specified step (determined by the frequency span and the number of points per sweep).

The following graph shows group delay accuracy with 3.5 mm connectors, full 2-port calibration and a 10 Hz IF bandwidth.

- Calibration kit (85052D).
- Insertion loss is assumed to be < 2 dB.



In general, the following formula can be used to determine the accuracy, in seconds, of a specific group delay measurement:
± phase accuracy (degrees) / [360 x aperture (Hz)]

- E5063A MY542, SG542 and above

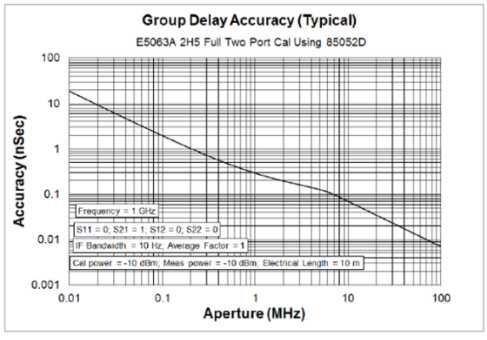
Group delay[1]

Description	Specification	Typical
Aperture (selectable)	(frequency span)/(number of points - 1)	
Maximum aperture	25% of frequency span	
Minimum delay		Limited to measuring no more than 180° of phase change within the minimum aperture.
Accuracy		See graph below (typical)

1. Group delay is computed by measuring the phase change within a specified step (determined by the frequency span and the number of points per sweep).

The following graph shows group delay accuracy with 3.5 mm connectors, full 2-port calibration and a 10 Hz IF bandwidth.

- Calibration kit (85052D).
- Insertion loss is assumed to be < 2 dB.



In general, the following formula can be used to determine the accuracy, in seconds, of a specific group delay measurement:
± phase accuracy (degrees) / [360 x aperture (Hz)]

~End~

Revision History:

Date	Service Note Revision	Author	Reason for Change
22-Oct-2018	E5063A-15	ls	As Published