

Constat de Contrôle Fonctionnel



Constat No 1-8520482581-1

Type 81160A
Constructeur Keysight Technologies Inc
Description 1 or 2 Channel Pulse Function Arbitrary Generator
No de série MY51400193

Délivré à
Ecole Polytechnique
Rte de Saclay
91128 PALAISEAU
France

Date du test 12 Jan 2017
Méthode de mesure doc
Température (23 ± 5) °C
Humidité (50 ± 30) %RH

Lieu d'intervention
Keysight Technologies France SAS
Parc Technopolis - Bâtiment Olympe
3 avenue du Canada
91940 Les ULIS
France

Ce constat documente la vérification fonctionnelle des fonctions de base de l'équipement et/ou ses performances typiques, en utilisant les procédures Keysight Technologies applicable, sous le contrôle d'un système d'assurance qualité qui répond aux exigences de la norme ISO 9001:2015.

Remarques ou Exigences Speciales

Motif de l'envoi : façade casée sur le cote droit.

Action prise : remplacement du cadre plastique avant. Vérification fonctionnelle.

Keysight Technologies France SAS
Parc Technopolis - Bâtiment Olympe
3 avenue du Canada
91940 Les ULIS
France

A handwritten signature in black ink, reading "Edgar Leckel".

Edgar Leckel - European Operations Manager

Numéro de commande client

3186L029926

Numéro de commande Keysight

1-8312609566

Date de Réception

22-Nov-2016

A l'attention de: Rémi Guillaumat

Adresse de livraison:

Ecole Polytechnique

Rte de Saclay

91128 PALAISEAU

France

Merci d'adresser vos demandes à:

Customer Contact Center France

Téléphone: 0805 980333

Télécopie: +33 (0)1 49 93 22 82

Courriel: contactcenter_france@keysight.com**Description du problème:**

Produit - Description	Constructeur	Numéro de série
81160A 1 or 2 Channel Pulse Function Arbitrary Generator	Keysight Technologies	MY51400193

Prestation(s) réalisée(s):

Prestation effectuée: Calibrage

Pour de plus amples informations concernant le calibrage et les conditions, merci de vous référer au constat de calibrage

Appareils nettoyés et tests de sécurité effectués (si applicables)

Les constats de calibrage et relevé de mesures sont disponibles électroniquement sur Keysight Infoline: www.keysight.com/find/infoline.

De plus, les appareils peuvent parfois être endommagés accidentellement. Merci de saisir 'Tips for preventing damage' dans le moteur de recherche sur la page ci-dessus, pour les dernières infos préventives.



Service Order: 1-8312609566

Ce document n'a pas valeur de facture

Constat de Vérification



Keysight Calibration

Constat No 1-8312609566-1

Type	81160A	Délivré à	Ecole Polytechnique
Constructeur	Keysight Technologies Inc		Rte de Saclay
Description	1 or 2 Channel Pulse Function Arbitrary Generator		91128 PALAISEAU
No de série	MY51400193		France
Options	002 660		
Date d'étalonnage	23 Nov 2016	Lieu d'intervention	Keysight Technologies
Méthode de mesure	DIV-81160A-BF3.4.20		Deutschland GmbH
Température	(23 ± 5) °C		Herrenberger Strasse 130
Humidité	(50 ± 30) %RH		D-71034 Boeblingen
			Germany

Ce constat de vérification certifie que l'équipement de mesure identifié ci-dessus a été vérifié sous le contrôle d'un système d'assurance qualité qui répond aux exigences de la norme ISO 9001:2015, en utilisant la procédure Keysight Technologies applicable.

Etat de l'instrument en entrée

Les valeurs mesurées de l'équipement ont été observées dans les spécifications aux points vérifiés.

Actions prises

- Aucune action corrective n'a été nécessaire.

Etat de l'instrument en sortie

Les valeurs mesurées de l'équipement ont été observées dans les spécifications aux points vérifiés.

Une équipe d'ingénieurs et de métrologues développe les procédures de vérification des performances des instruments et sélectionne les moyens de mesure spécifiques adéquats, en considérant les incertitudes de mesure requises. Dans ce rapport, les déclarations de conformité "Passed" ou "Failed" sont déterminées par simple comparaison des résultats des mesures observées aux spécifications garanties.

Remarques ou Exigences Spéciales

Ce certificat d'étalonnage / constat de vérification peut faire référence à des instruments construits par HP, Agilent et Keysight comme étant construits par Keysight Technologies, Inc.

Les limites d'acceptation enregistrées dans le certificat correspondent aux spécifications de l'équipement de mesure pour les points vérifiés dans la procédure.

Keysight Technologies
Deutschland GmbH
Herrenberger Strasse 130
D-71034 Boeblingen
Germany

Edgar Leckel - European Operations Manager

Constat de Vérification



Keysight Calibration

Constat No 1-8312609566-1

Rapport de Traçabilité

Identification du Technicien 00894921

Les résultats des mesurages sont traçables aux unités du Système International d'Unités (SI) via des Instituts Nationaux de Métrologie (www.keysight.com/find/NMI) signataires de l'Arrangement de Reconnaissance Mutuelle du CIPM (CIPM - MRA).

La reproduction de ce certificat n'est autorisée que sous la forme de facsimilé photographique intégral avec l'accord préalable écrite du laboratoire.

Equipements utilisés pour la vérification

Type	Désignation	Référence	Date de Validité	Constat No
34401A	Digital multimeter, 6.5 digit	DE1721	31 Mar 2017	1-6675728219-1
81130A	400/660 MHz Pulse / Pattern Generator	DE3283	7 Jan 2018	1-6465980613-1
86100C	Infiniium DCA-J Oscilloscope Mainframe	DE2723	14 Jan 2017	1-7555650777-1
86117A	30 / 50 GHz Dual electrical module	DE2724	8 Jun 2017	1-6867175048-1
86117A	30 / 50 GHz Dual electrical module	DE3503	17 May 2018	1-7824841216-1
E4448A	PSA Spectrum Analyzer 3 Hz - 50 GHz	DE3100	12 Feb 2018	1-7555642748-1
E8257D	PSG analog signal generator	DE3501	26 Oct 2018	1-8137554621-1



Keysight Technologies Deutschland GmbH

Herrenberger Str. 130
71034 Böblingen
Germany



Measurement Report

Certificate Number: 1-8312609566-1

Manufacturer: Keysight Technologies
Model No.: 81160A
Serial No.: MY51400193
Options: 002 660
Device Software Revision: 1.0.3.0-2.6

Calibration Date: 23-Nov-2016
Test Program Name: BF 3.4.20
Test Condition: As Received

Comment:



Keysight Technologies Deutschland GmbH

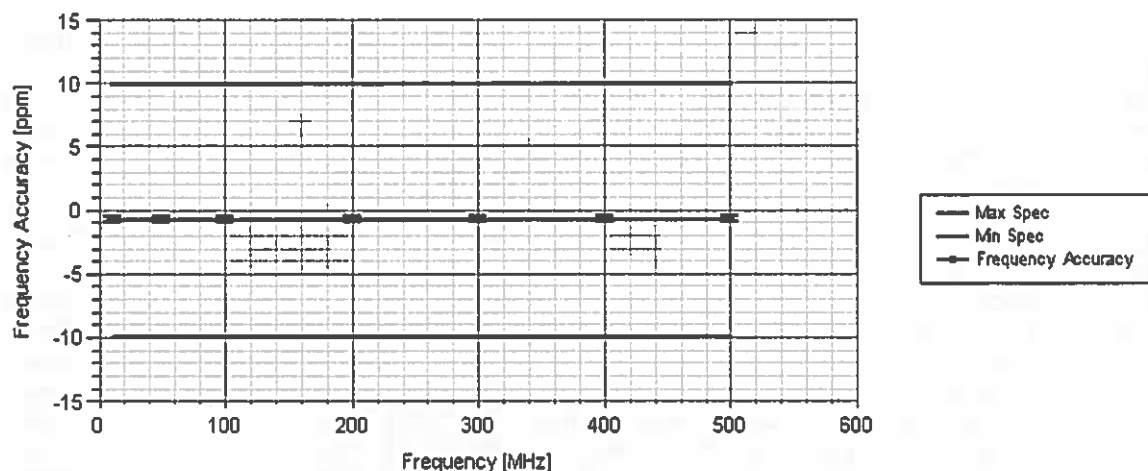
Harrenberger Str. 130
71034 Böblingen
Germany

Product Number	Serial Number	Asset Number	Description	Next Cal. Due Date
34401A	3146A19464	DE1721	Multimeter	31-Mar-2017
81130A	DE52010001	DE3283	Pulse Pattern Generator	7-Jan-2018
86100C	MY45030353	DE2723	Digital Communications Analyzer	14-Jan-2017
86117A	MY49350502	DE3503	Plug In	17-May-2018
86117A	US42400228	DE2724	Plug In	8-Jun-2017
E4448A	MY50180040	DE3100	Spectrum Analyzer	12-Feb-2018
E8257D	MY53400998	DE3501	Analog Signal Generator	26-Oct-2018

Performance Test Results Summary

Test Number	Performance Test Name	Status
81160461/1	Frequency Accuracy vs. Frequency	Passed
81160480/1	Harmonic Distortion vs. Frequency (Channel 1, Out, amp=1V)	Passed
81160481/1	Harmonic Distortion vs. Frequency (Channel 1, Out, amp=3V)	Passed
81160482/1	Harmonic Distortion vs. Frequency (Channel 1, notOut, amp=1V)	Passed
81160483/1	Harmonic Distortion vs. Frequency (Channel 1, notOut, amp=3V)	Passed
81160580/1	Harmonic Distortion vs. Frequency (Channel 2, Out, amp=1V)	Passed
81160581/1	Harmonic Distortion vs. Frequency (Channel 2, Out, amp=3V)	Passed
81160582/1	Harmonic Distortion vs. Frequency (Channel 2, notOut, amp=1V)	Passed
81160583/1	Harmonic Distortion vs. Frequency (Channel 2, notOut, amp=3V)	Passed
81160464/1	Delay Accuracy (Channel 1)	Passed
81160470/1	Transition Time Accuracy vs. Amplitude (Channel 1, Out, Rising Edge)	Passed
81160470/2	Transition Time Accuracy vs. Amplitude (Channel 1, Out, Falling Edge)	Passed
81160471/1	Transition Time Accuracy vs. Amplitude (Channel 1, notOut, Rising Edge)	Passed
81160471/2	Transition Time Accuracy vs. Amplitude (Channel 1, notOut, Falling Edge)	Passed
81160474/1	Pulse Width Accuracy (Channel 1, Out)	Passed
81160475/1	Pulse Width Accuracy (Channel 1, notOut)	Passed
81160564/1	Delay Accuracy (Channel 2)	Passed
81160570/1	Transition Time Accuracy vs. Amplitude (Channel 2, Out, Rising Edge)	Passed
81160570/2	Transition Time Accuracy vs. Amplitude (Channel 2, Out, Falling Edge)	Passed
81160571/1	Transition Time Accuracy vs. Amplitude (Channel 2, notOut, Rising Edge)	Passed
81160571/2	Transition Time Accuracy vs. Amplitude (Channel 2, notOut, Falling Edge)	Passed
81160574/1	Pulse Width Accuracy (Channel 2, Out)	Passed
81160575/1	Pulse Width Accuracy (Channel 2, notOut)	Passed
81160490/1	DC Offset Accuracy (Channel 1, Out, 50Ohm into open)	Passed
81160492/1	DC Offset Accuracy (Channel 1, notOut, 50Ohm into open)	Passed
81160590/1	DC Offset Accuracy (Channel 2, Out, 50Ohm into open)	Passed
81160592/1	DC Offset Accuracy (Channel 2, notOut, 50Ohm into open)	Passed
81160494/1	DC Offset Accuracy (Channel 1, Out, 50Ohm into 50 Ohm)	Passed
81160498/1	DC Amplitude Accuracy (Channel 1, Out, 50Ohm into 50 Ohm)	Passed
81160496/1	DC Offset Accuracy (Channel 1, notOut, 50Ohm into 50 Ohm)	Passed
81160499/1	DC Amplitude Accuracy (Channel 1, notOut, 50Ohm into 50 Ohm)	Passed
81160594/1	DC Offset Accuracy (Channel 2, Out, 50Ohm into 50 Ohm)	Passed
81160598/1	DC Amplitude Accuracy (Channel 2, Out, 50Ohm into 50 Ohm)	Passed
81160596/1	DC Offset Accuracy (Channel 2, notOut, 50Ohm into 50 Ohm)	Passed
81160599/1	DC Amplitude Accuracy (Channel 2, notOut, 50Ohm into 50 Ohm)	Passed

Frequency Accuracy vs. Frequency



Expected Frequency [MHz]	Frequency Accuracy [ppm]	Uncertainty Frequency Accuracy [ppm]	Min Spec [ppm]	Max Spec [ppm]	Min. Accept [ppm]	Max. Accept [ppm]	Status
10.000	-0.69	0.22	-10.00	10.00	-6.78	6.78	pass
50.000	-0.69	0.23	-10.00	10.00	-6.77	6.77	pass
100.000	-0.69	0.23	-10.00	10.00	-6.77	6.77	pass
200.000	-0.68	0.23	-10.00	10.00	-6.77	6.77	pass
300.000	-0.69	0.23	-10.00	10.00	-6.77	6.77	pass
400.000	-0.69	0.23	-10.00	10.00	-6.77	6.77	pass
500.000	-0.69	0.23	-10.00	10.00	-6.77	6.77	pass

Parameters

Relative Frequency Accuracy = (Measured Frequency - Expected Frequency) / (Expected Frequency)

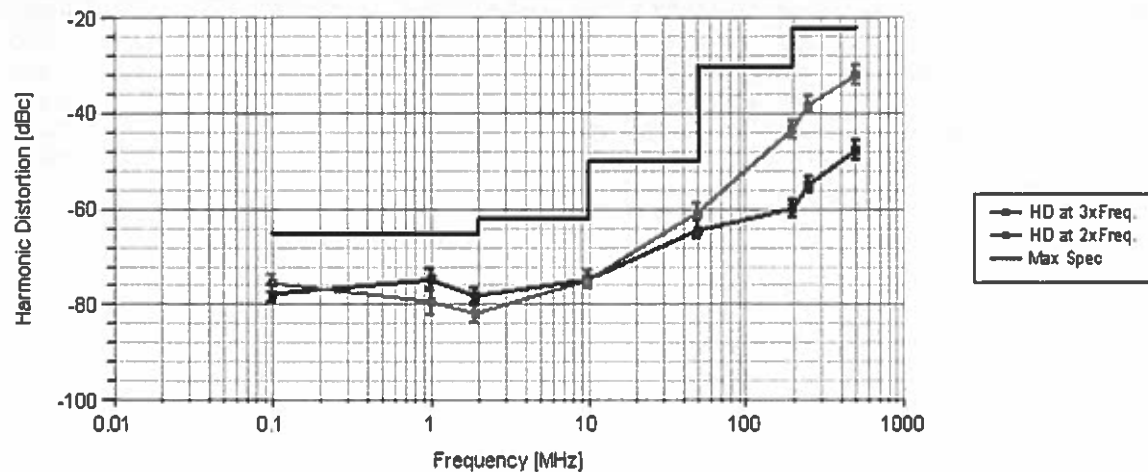
Specification: ± 10 ppm

Guardband for aging and stability: 3ppm

Reference Clock: Internal reference clock

Amplitude: 2.5Vpp

Harmonic Distortion vs. Frequency (Channel 1, Out. amp=1V)



Parameters

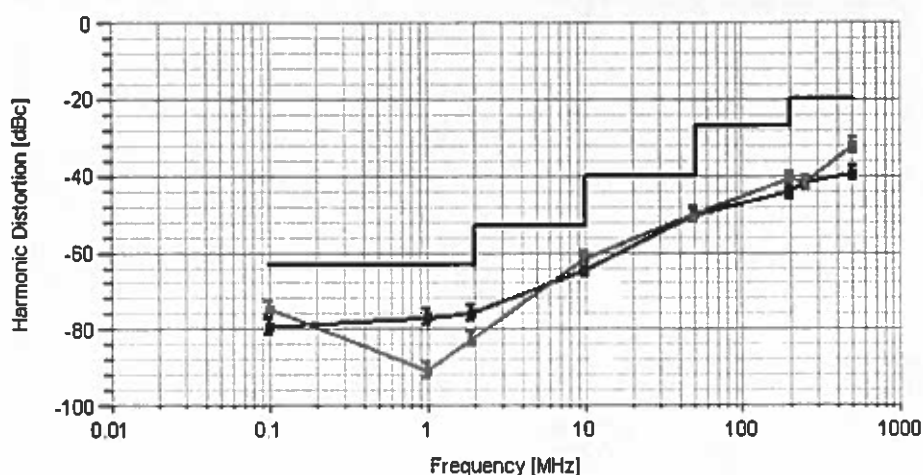
Output shape: Sinus

HD = harmonic distortion

Freq. [MHz]	HD at 2xFreq. [dBc]	Uncertainty HD at 2xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-75.5	1.8	-65.0	-66.8	pass
1.000	-79.4	2.8	-65.0	-67.8	pass
1.900	-81.9	1.8	-65.0	-66.8	pass
9.900	-74.9	1.8	-62.0	-63.8	pass
49.000	-60.8	1.8	-50.0	-51.8	pass
199.000	-43.3	1.8	-30.0	-31.8	pass
250.000	-38.3	1.8	-22.0	-23.8	pass
500.000	-32.0	1.9	-22.0	-23.9	pass

Freq. [MHz]	HD at 3xFreq. [dBc]	Uncertainty HD at 3xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-77.7	1.7	-65.0	-66.7	pass
1.000	-74.8	2.1	-65.0	-67.1	pass
1.900	-78.2	1.7	-65.0	-66.7	pass
9.900	-74.8	1.8	-62.0	-63.8	pass
49.000	-64.5	1.8	-50.0	-51.8	pass
199.000	-59.9	1.8	-30.0	-31.8	pass
250.000	-54.9	1.8	-22.0	-23.8	pass
500.000	-47.7	1.9	-22.0	-23.9	pass

Harmonic Distortion vs. Frequency (Channel 1, Out. amp=3V)



Parameters

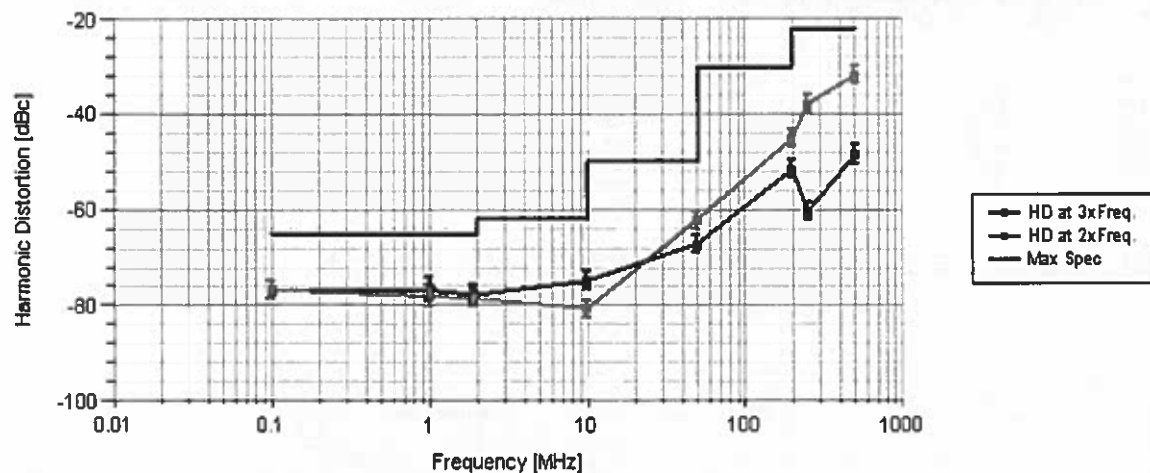
Output shape: Sinus

HD = harmonic distortion

Freq. [MHz]	HD at 2xFreq. [dBc]	Uncertainty HD at 2xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-74.6	1.8	-63.0	-64.8	pass
1.000	-90.9	2.0	-63.0	-65.0	pass
1.900	-82.7	1.8	-63.0	-64.8	pass
9.900	-61.6	1.7	-53.0	-54.7	pass
49.000	-50.2	1.8	-40.0	-41.8	pass
199.000	-40.8	1.8	-27.0	-28.8	pass
250.000	-41.7	1.8	-20.0	-21.8	pass
500.000	-32.2	1.9	-20.0	-21.9	pass

Freq. [MHz]	HD at 3xFreq. [dBc]	Uncertainty HD at 3xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-79.3	1.8	-63.0	-64.8	pass
1.000	-77.0	2.0	-63.0	-65.0	pass
1.900	-75.8	1.8	-63.0	-64.8	pass
9.900	-64.6	1.7	-53.0	-54.7	pass
49.000	-50.4	1.8	-40.0	-41.8	pass
199.000	-44.2	1.8	-27.0	-28.8	pass
250.000	-41.7	1.8	-20.0	-21.8	pass
500.000	-39.4	1.9	-20.0	-21.9	pass

Harmonic Distortion vs. Frequency (Channel 1, notOut, amp=1V)



Parameters

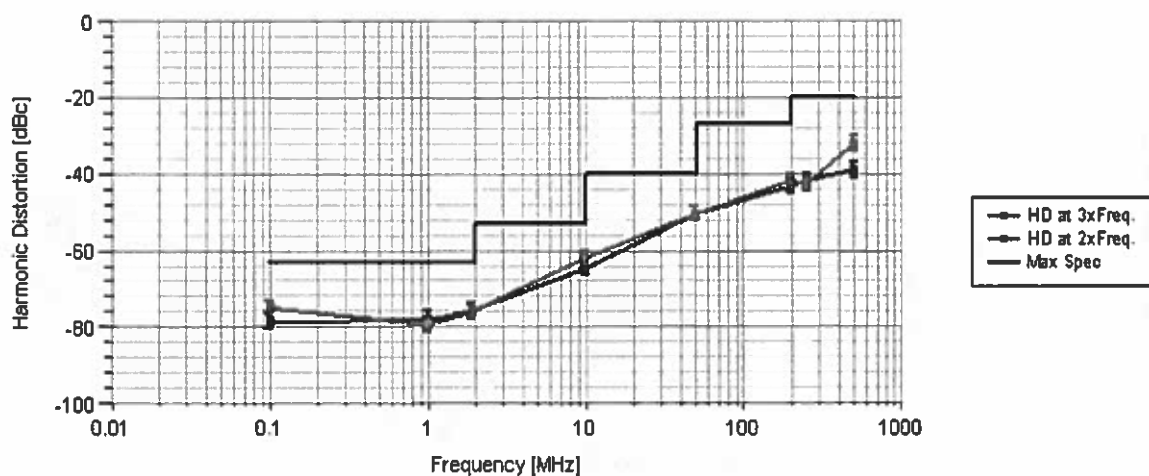
Output shape: Sinus

HD = harmonic distortion

Freq. [MHz]	HD at 2xFreq. [dBc]	Uncertainty HD at 2xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-76.7	1.8	-65.0	-66.8	pass
1.000	-78.0	2.3	-65.0	-67.3	pass
1.900	-78.5	1.7	-65.0	-66.7	pass
9.900	-80.7	1.8	-62.0	-63.8	pass
49.000	-62.2	1.8	-50.0	-51.8	pass
199.000	-45.1	1.8	-30.0	-31.8	pass
250.000	-37.9	1.8	-22.0	-23.8	pass
500.000	-31.9	1.9	-22.0	-23.9	pass

Freq. [MHz]	HD at 3xFreq. [dBc]	Uncertainty HD at 3xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-76.9	1.8	-65.0	-66.8	pass
1.000	-76.8	2.4	-65.0	-67.4	pass
1.900	-77.8	1.8	-65.0	-66.8	pass
9.900	-74.9	1.8	-62.0	-63.8	pass
49.000	-67.2	1.8	-50.0	-51.8	pass
199.000	-51.6	1.8	-30.0	-31.8	pass
250.000	-60.4	1.8	-22.0	-23.8	pass
500.000	-48.5	1.9	-22.0	-23.9	pass

Harmonic Distortion vs. Frequency (Channel 1, notOut, amp=3V)



Parameters

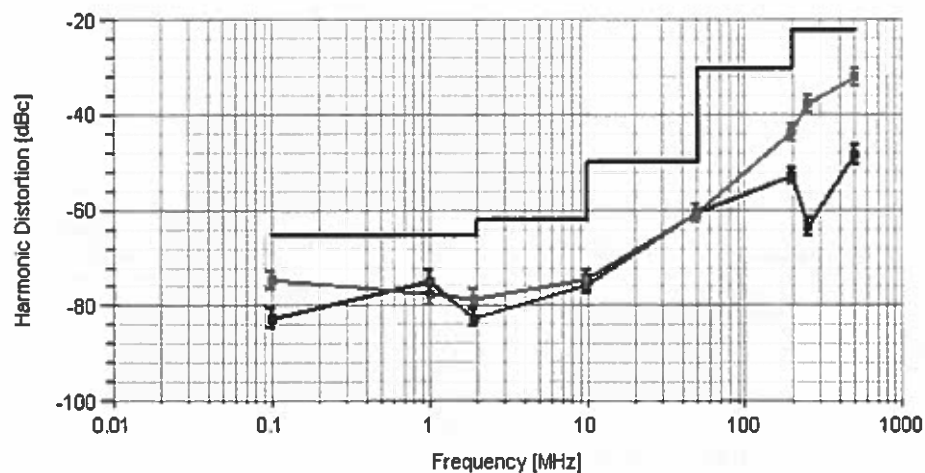
Output shape: Sinus

HD = harmonic distortion

Freq. [MHz]	HD at 2xFreq. [dBc]	Uncertainty HD at 2xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-75.0	1.9	-63.0	-64.9	pass
1.000	-79.4	1.9	-63.0	-64.9	pass
1.900	-76.0	1.8	-63.0	-64.8	pass
9.900	-61.9	1.7	-53.0	-54.7	pass
49.000	-50.6	1.8	-40.0	-41.8	pass
199.000	-41.8	1.8	-27.0	-28.8	pass
250.000	-42.8	1.8	-20.0	-21.8	pass
500.000	-32.1	1.9	-20.0	-21.9	pass

Freq. [MHz]	HD at 3xFreq. [dBc]	Uncertainty HD at 3xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-78.4	1.9	-63.0	-64.9	pass
1.000	-78.2	2.5	-63.0	-65.5	pass
1.900	-75.7	1.7	-63.0	-64.7	pass
9.900	-64.6	1.8	-53.0	-54.8	pass
49.000	-50.6	1.8	-40.0	-41.8	pass
199.000	-43.2	1.8	-27.0	-28.8	pass
250.000	-41.7	1.8	-20.0	-21.8	pass
500.000	-39.0	1.9	-20.0	-21.9	pass

Harmonic Distortion vs. Frequency (Channel 2, Out. amp=1V)



Parameters

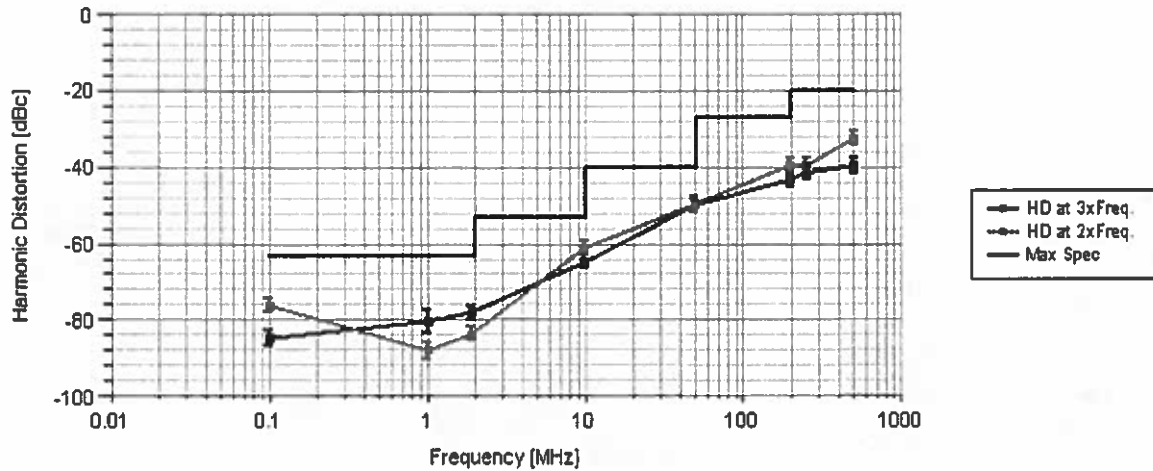
Output shape: Sinus

HD = harmonic distortion

Freq. [MHz]	HD at 2xFreq. [dBc]	Uncertainty HD at 2xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-74.7	1.8	-65.0	-66.8	pass
1.000	-77.5	2.5	-65.0	-67.5	pass
1.900	-78.6	1.8	-65.0	-66.8	pass
9.900	-74.4	1.8	-62.0	-63.8	pass
49.000	-60.9	1.8	-50.0	-51.8	pass
199.000	-43.7	1.8	-30.0	-31.8	pass
250.000	-37.8	1.8	-22.0	-23.8	pass
500.000	-32.2	1.9	-22.0	-23.9	pass

Freq. [MHz]	HD at 3xFreq. [dBc]	Uncertainty HD at 3xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-82.8	2.0	-65.0	-67.0	pass
1.000	-74.9	2.5	-65.0	-67.5	pass
1.900	-82.6	1.8	-65.0	-66.8	pass
9.900	-75.7	1.8	-62.0	-63.8	pass
49.000	-60.7	1.8	-50.0	-51.8	pass
199.000	-52.9	1.8	-30.0	-31.8	pass
250.000	-63.5	1.8	-22.0	-23.8	pass
500.000	-48.5	1.9	-22.0	-23.9	pass

Harmonic Distortion vs. Frequency (Channel 2, Out. amp=3V)



Parameters

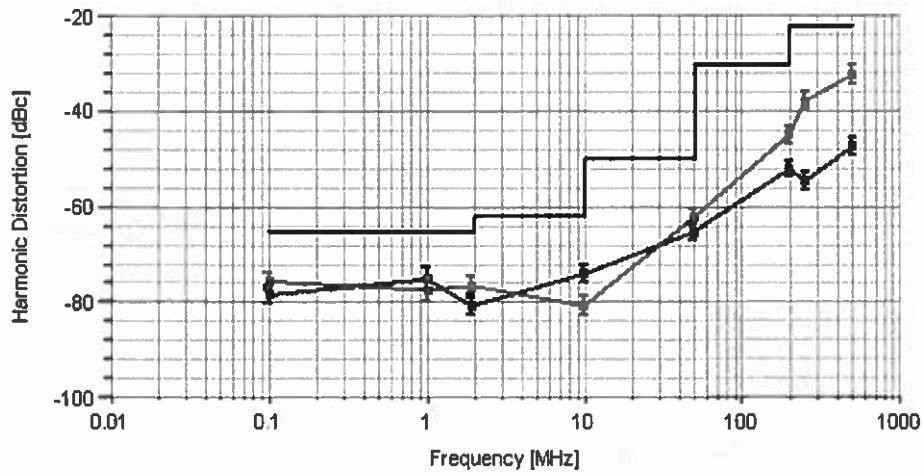
Output shape: Sinus

HD = harmonic distortion

Freq. [MHz]	HD at 2xFreq. [dBc]	Uncertainty HD at 2xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-76.1	1.9	-63.0	-64.9	pass
1.000	-88.0	2.3	-63.0	-65.3	pass
1.900	-83.7	1.8	-63.0	-64.8	pass
9.900	-61.0	1.7	-53.0	-54.7	pass
49.000	-49.7	1.8	-40.0	-41.8	pass
199.000	-39.4	1.8	-27.0	-28.8	pass
250.000	-39.5	1.8	-20.0	-21.8	pass
500.000	-32.4	1.9	-20.0	-21.9	pass

Freq. [MHz]	HD at 3xFreq. [dBc]	Uncertainty HD at 3xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-84.9	2.0	-63.0	-65.0	pass
1.000	-80.2	3.1	-63.0	-66.1	pass
1.900	-77.9	1.8	-63.0	-64.8	pass
9.900	-64.7	1.8	-53.0	-54.8	pass
49.000	-49.9	1.8	-40.0	-41.8	pass
199.000	-43.2	1.8	-27.0	-28.8	pass
250.000	-41.4	1.8	-20.0	-21.8	pass
500.000	-39.5	1.9	-20.0	-21.9	pass

Harmonic Distortion vs. Frequency (Channel 2, notOut, amp=1V)



Parameters

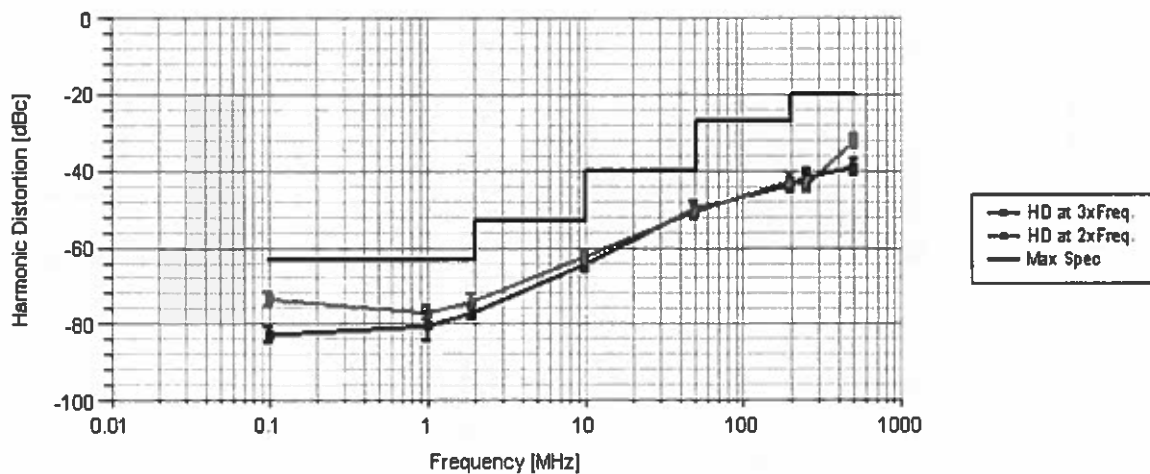
Output shape: Sinus

HD = harmonic distortion

Freq. [MHz]	HD at 2xFreq. [dBc]	Uncertainty HD at 2xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-75.6	1.8	-65.0	-66.8	pass
1.000	-77.4	2.4	-65.0	-67.4	pass
1.900	-76.5	1.8	-65.0	-66.8	pass
9.900	-80.7	1.9	-62.0	-63.9	pass
49.000	-62.3	1.8	-50.0	-51.8	pass
199.000	-44.9	1.8	-30.0	-31.8	pass
250.000	-37.9	1.8	-22.0	-23.8	pass
500.000	-32.4	1.9	-22.0	-23.9	pass

Freq. [MHz]	HD at 3xFreq. [dBc]	Uncertainty HD at 3xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-78.4	1.8	-65.0	-66.8	pass
1.000	-75.1	2.4	-65.0	-67.4	pass
1.900	-80.7	1.8	-65.0	-66.8	pass
9.900	-74.0	1.8	-62.0	-63.8	pass
49.000	-65.3	1.8	-50.0	-51.8	pass
199.000	-52.1	1.8	-30.0	-31.8	pass
250.000	-54.7	1.8	-22.0	-23.8	pass
500.000	-47.4	1.9	-22.0	-23.9	pass

Harmonic Distortion vs. Frequency (Channel 2, notOut, amp=3V)



Parameters

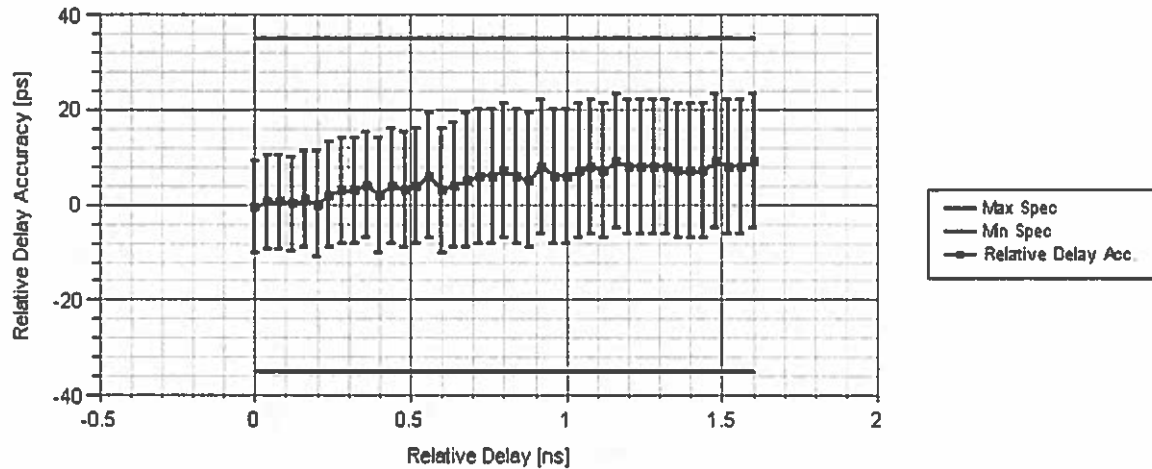
Output shape: Sinus

HD = harmonic distortion

Freq. [MHz]	HD at 2xFreq. [dBc]	Uncertainty HD at 2xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-73.5	1.8	-63.0	-64.8	pass
1.000	-77.1	1.9	-63.0	-64.9	pass
1.900	-74.2	1.7	-63.0	-64.7	pass
9.900	-62.3	1.7	-53.0	-54.7	pass
49.000	-50.7	1.8	-40.0	-41.8	pass
199.000	-42.5	1.8	-27.0	-28.8	pass
250.000	-43.8	1.8	-20.0	-21.8	pass
500.000	-32.3	1.9	-20.0	-21.9	pass

Freq. [MHz]	HD at 3xFreq. [dBc]	Uncertainty HD at 3xFreq. [dB]	Max Spec [dBc]	Max. Accept. [dBc]	Status
0.100	-82.8	2.2	-63.0	-65.2	pass
1.000	-80.5	3.6	-63.0	-66.6	pass
1.900	-77.1	1.7	-63.0	-64.7	pass
9.900	-64.3	1.8	-53.0	-54.8	pass
49.000	-50.0	1.8	-40.0	-41.8	pass
199.000	-43.7	1.8	-27.0	-28.8	pass
250.000	-41.6	1.8	-20.0	-21.8	pass
500.000	-39.1	1.9	-20.0	-21.9	pass

Delay Accuracy (Channel 1)



Relative Delay [ns]	Relative Delay Acc. [ps]	Uncertainty Relative Delay Acc. [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Relative Delay [ns]	Status
0.000	-0.6	9.7	-35.0	35.0	-25.3	25.3	-0.0006	pass
0.040	0.5	9.7	-35.0	35.0	-25.3	25.3	0.0405	pass
0.080	0.6	9.8	-35.0	35.0	-25.2	25.2	0.0806	pass
0.120	0.1	9.9	-35.0	35.0	-25.1	25.1	0.1201	pass
0.160	1	10	-35.0	35.0	-25.0	25.0	0.1608	pass
0.200	0	11	-35.0	35.0	-24.0	24.0	0.2001	pass
0.240	2	11	-35.0	35.0	-24.0	24.0	0.2417	pass
0.280	3	11	-35.0	35.0	-24.0	24.0	0.2830	pass
0.320	3	11	-35.0	35.0	-24.0	24.0	0.3234	pass
0.360	4	11	-35.0	35.0	-24.0	24.0	0.3643	pass
0.400	2	12	-35.0	35.0	-23.0	23.0	0.4023	pass
0.440	4	12	-35.0	35.0	-23.0	23.0	0.4436	pass
0.480	3	12	-35.0	35.0	-23.0	23.0	0.4830	pass
0.520	4	12	-35.0	35.0	-23.0	23.0	0.5235	pass
0.560	6	13	-35.0	35.0	-22.0	22.0	0.5656	pass
0.600	3	13	-35.0	35.0	-22.0	22.0	0.6027	pass
0.640	4	13	-35.0	35.0	-22.0	22.0	0.6444	pass
0.680	5	14	-35.0	35.0	-21.0	21.0	0.6847	pass
0.720	6	14	-35.0	35.0	-21.0	21.0	0.7257	pass
0.760	6	14	-35.0	35.0	-21.0	21.0	0.7662	pass
0.800	7	14	-35.0	35.0	-21.0	21.0	0.8067	pass
0.840	6	14	-35.0	35.0	-21.0	21.0	0.8460	pass
0.880	5	14	-35.0	35.0	-21.0	21.0	0.8853	pass
0.920	8	14	-35.0	35.0	-21.0	21.0	0.9278	pass
0.960	6	14	-35.0	35.0	-21.0	21.0	0.9662	pass
1.000	6	14	-35.1	35.1	-21.1	21.1	1.0061	pass
1.040	7	14	-35.1	35.1	-21.1	21.1	1.0467	pass
1.080	8	14	-35.1	35.1	-21.1	21.1	1.0878	pass
1.120	7	14	-35.1	35.1	-21.1	21.1	1.1271	pass
1.160	9	14	-35.1	35.1	-21.1	21.1	1.1686	pass
1.200	8	14	-35.1	35.1	-21.1	21.1	1.2084	pass
1.240	8	14	-35.1	35.1	-21.1	21.1	1.2481	pass
1.280	8	14	-35.1	35.1	-21.1	21.1	1.2882	pass
1.320	8	14	-35.1	35.1	-21.1	21.1	1.3277	pass
1.360	7	14	-35.1	35.1	-21.1	21.1	1.3675	pass
1.400	7	14	-35.1	35.1	-21.1	21.1	1.4073	pass
1.440	7	14	-35.1	35.1	-21.1	21.1	1.4473	pass
1.480	9	14	-35.1	35.1	-21.1	21.1	1.4891	pass
1.520	8	14	-35.1	35.1	-21.1	21.1	1.5285	pass
1.560	8	14	-35.1	35.1	-21.1	21.1	1.5684	pass
1.600	9	14	-35.1	35.1	-21.1	21.1	1.6095	pass

Parameters

Relative Delay Accuracy = (Measured Delay - Measured Reference Delay) - Expected Relative Delay

Specification: $\pm 35\text{ps}$ and $\pm 50\text{ppm}$

Frequency: 10MHz

Offset: 0V

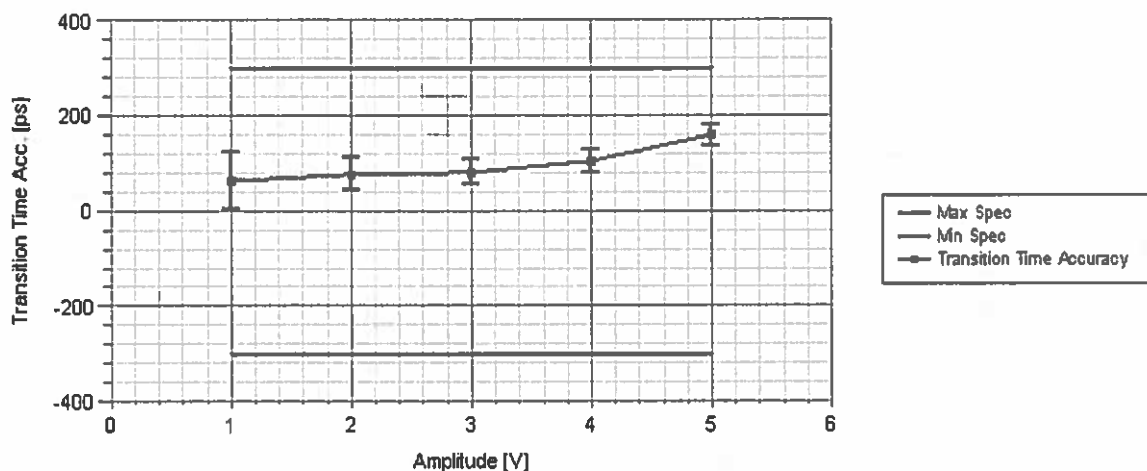
Amplitude: 5Vpp

Transition Time Rising Edge = Transition Time Falling Edge = 2.0ns

Averages: 25

Coarse delay steps of 400ps are generated digitally based on internal clock of 2.5GHz. Hence the accuracy of coarse delay only depends on frequency accuracy

Transition Time Accuracy vrs. Amplitude (Channel 1, Out. Rising Edge)



Amplitude [V]	Transition Time Accuracy [ps]	Uncertainty Transition Time Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Transition Time [ns]	Status
1	63	62	-300	300	-238	238	1.063	pass
2	76	35	-300	300	-265	265	1.076	pass
3	80	27	-300	300	-273	273	1.080	pass
4	104	24	-300	300	-276	276	1.104	pass
5	159	22	-300	300	-278	278	1.159	pass

Parameters

Transition times measured from 10% to 90%

Specification: ± 300 ps and ± 50 ppm

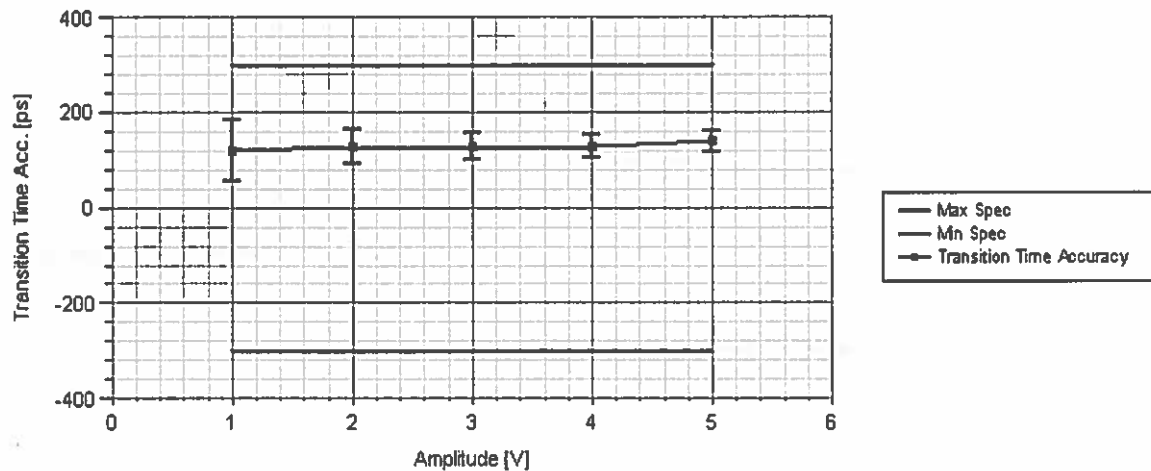
Transition Time Accuracy = Measured Transition Time - Expected Transition Time

Frequency: 5MHz

Expected Transition Time: 1ns

Averages: 10

Transition Time Accuracy vrs. Amplitude (Channel 1. Out. Falling Edge)



Amplitude [V]	Transition Time Accuracy [ps]	Uncertainty Transition Time Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Transition Time [ns]	Status
1	120	65	-300	300	-235	235	1.120	pass
2	127	36	-300	300	-264	264	1.127	pass
3	126	28	-300	300	-272	272	1.126	pass
4	127	24	-300	300	-276	276	1.127	pass
5	139	22	-300	300	-278	278	1.139	pass

Parameters

Transition times measured from 10% to 90%

Specification: ± 300 ps and ± 50 ppm

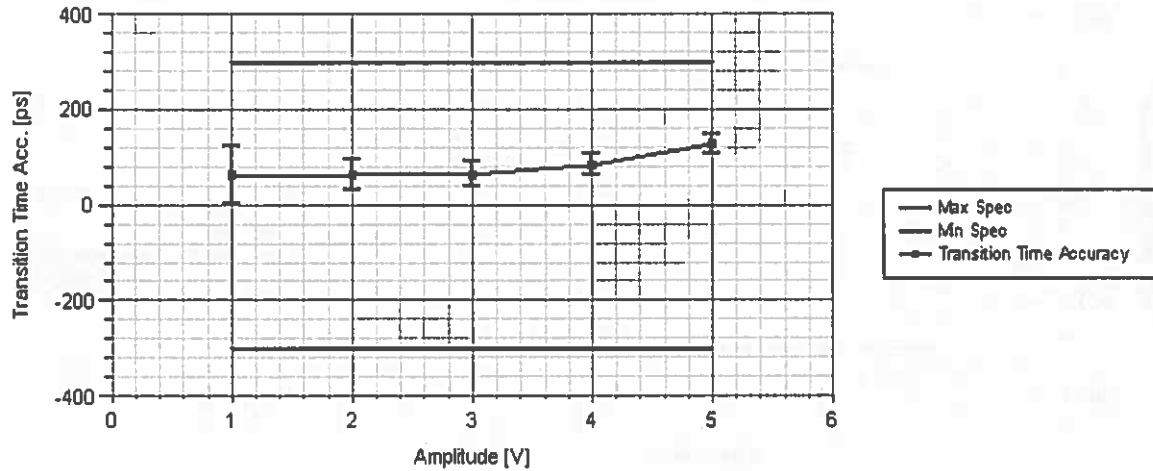
Transition Time Accuracy = Measured Transition Time - Expected Transition Time

Frequency: 5MHz

Expected Transition Time: 1ns

Averages: 10

Transition Time Accuracy vrs. Amplitude (Channel 1, notOut, Rising Edge)



Amplitude [V]	Transition Time Accuracy [ps]	Uncertainty Transition Time Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Transition Time [ns]	Status
1	62	61	-300	300	-239	239	1.062	pass
2	63	34	-300	300	-266	266	1.063	pass
3	64	26	-300	300	-274	274	1.064	pass
4	84	23	-300	300	-277	277	1.084	pass
5	127	21	-300	300	-279	279	1.127	pass

Parameters

Transition times measured from 10% to 90%

Specification: ± 300 ps and ± 50 ppm

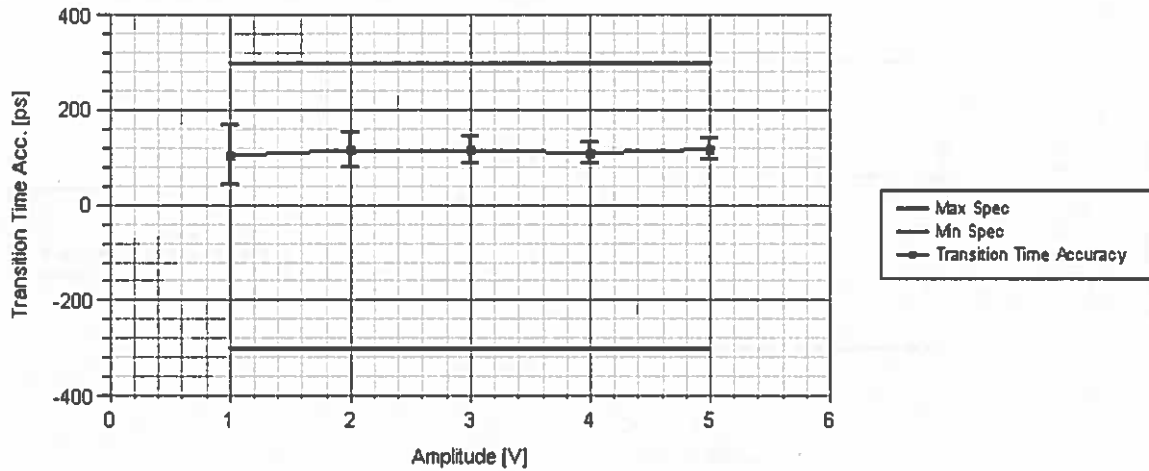
Transition Time Accuracy = Measured Transition Time - Expected Transition Time

Frequency: 5MHz

Expected Transition Time: 1ns

Averages: 10

Transition Time Accuracy vrs. Amplitude (Channel 1, notOut, Falling Edge)



Amplitude [V]	Transition Time Accuracy [ps]	Uncertainty Transition Time Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Transition Time [ns]	Status
1	104	63	-300	300	-237	237	1.104	pass
2	115	35	-300	300	-265	265	1.115	pass
3	115	27	-300	300	-273	273	1.115	pass
4	109	23	-300	300	-277	277	1.109	pass
5	117	21	-300	300	-279	279	1.117	pass

Parameters

Transition times measured from 10% to 90%

Specification: $\pm 300\text{ps}$ and $\pm 50\text{ppm}$

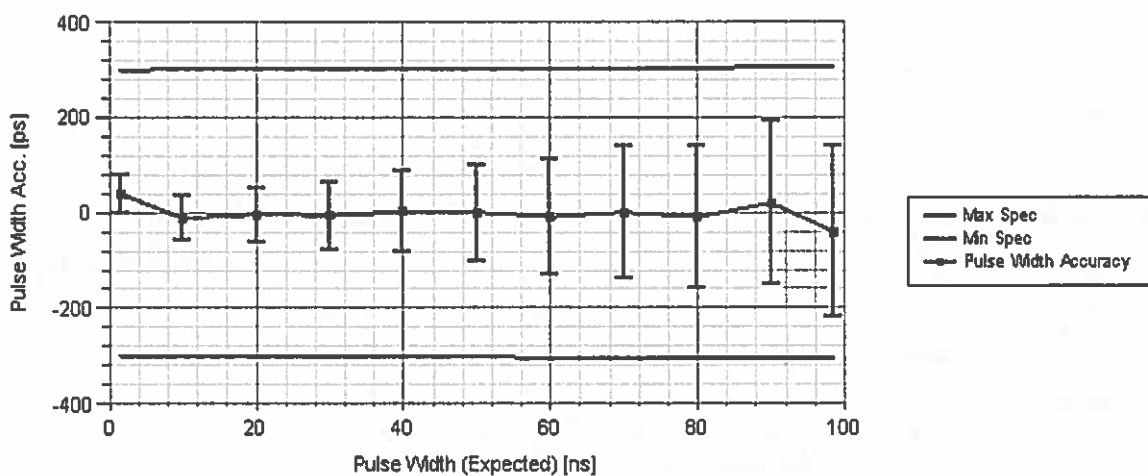
Transition Time Accuracy = Measured Transition Time - Expected Transition Time

Frequency: 5MHz

Expected Transition Time: 1ns

Averages: 10

Pulse Width Accuracy (Channel 1. Out)



Pulse Width (Expected) [ns]	Pulse Width Accuracy [ps]	Uncertainty Pulse Width Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Pulse Width [ns]	Status
1.500	40	40	-300	300	-260	260	1.540	pass
10.000	-12	46	-301	301	-255	255	9.988	pass
20.000	-4	56	-301	301	-245	245	19.996	pass
30.000	-6	70	-302	302	-232	232	29.994	pass
40.000	2	85	-302	302	-217	217	40.002	pass
50.000	0	100	-303	303	-203	203	50.000	pass
60.000	-10	120	-303	303	-183	183	59.988	pass
70.000	0	140	-304	304	-164	164	69.996	pass
80.000	-10	150	-304	304	-154	154	79.994	pass
90.000	20	170	-305	305	-135	135	90.021	pass
98.500	-40	180	-305	305	-125	125	98.460	pass

Parameters

Pulse Width Accuracy = Measured Pulse Width - Expected Pulse Width

Definition of Pulse Width: time interval between the intersections of the rising edge and the following falling edge with the 50% reference level

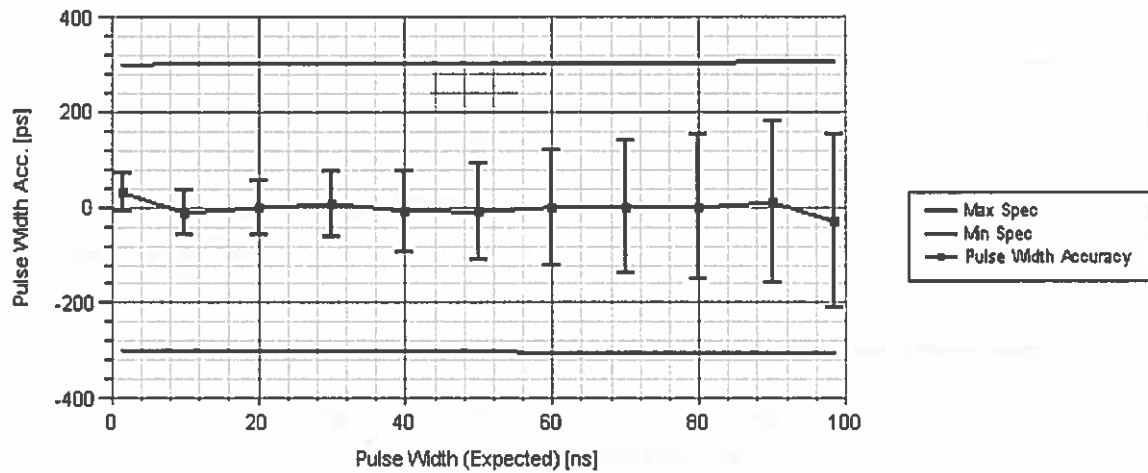
Specification: ± 300 ps and ± 50 ppm

Frequency: 10MHz

Amplitude: 5Vpp

Transition Time Rising Edge = Transition Time Falling Edge = 1.0ns

Pulse Width Accuracy (Channel 1, notOut)



Pulse Width (Expected) [ns]	Pulse Width Accuracy [ps]	Uncertainty Pulse Width Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Pulse Width [ns]	Status
1.500	30	40	-300	300	-260	260	1.530	pass
10.000	-12	46	-301	301	-255	255	9.988	pass
20.000	-2	57	-301	301	-244	244	19.998	pass
30.000	7	70	-302	302	-232	232	30.007	pass
40.000	-8	85	-302	302	-217	217	39.992	pass
50.000	-10	100	-303	303	-203	203	49.995	pass
60.000	0	120	-303	303	-183	183	59.998	pass
70.000	0	140	-304	304	-164	164	69.996	pass
80.000	0	150	-304	304	-154	154	80.002	pass
90.000	10	170	-305	305	-135	135	90.012	pass
98.500	-30	180	-305	305	-125	125	98.470	pass

Parameters

Pulse Width Accuracy = Measured Pulse Width - Expected Pulse Width

Definition of Pulse Width: time interval between the intersections of the rising edge and the following falling edge with the 50% reference level

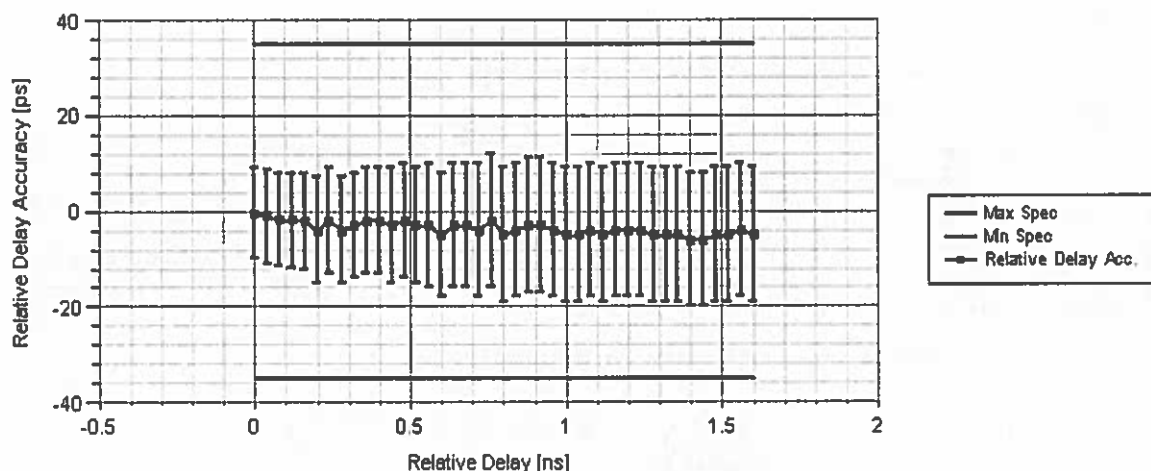
Specification: ± 300 ps and ± 50 ppm

Frequency: 10MHz

Amplitude: 5Vpp

Transition Time Rising Edge = Transition Time Falling Edge = 1.0ns

Delay Accuracy (Channel 2)



Relative Delay [ns]	Relative Delay Acc. [ps]	Uncertainty Relative Delay Acc. [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Relative Delay [ns]	Status
0.000	-0.4	9.5	-35.0	35.0	-25.5	25.5	-0.0004	pass
0.040	-1.1	9.7	-35.0	35.0	-25.3	25.3	0.0389	pass
0.080	-1.7	9.7	-35.0	35.0	-25.3	25.3	0.0783	pass
0.120	-1.9	9.9	-35.0	35.0	-25.1	25.1	0.1181	pass
0.160	-2	10	-35.0	35.0	-25.0	25.0	0.1580	pass
0.200	-4	11	-35.0	35.0	-24.0	24.0	0.1963	pass
0.240	-2	11	-35.0	35.0	-24.0	24.0	0.2378	pass
0.280	-4	11	-35.0	35.0	-24.0	24.0	0.2765	pass
0.320	-3	11	-35.0	35.0	-24.0	24.0	0.3173	pass
0.360	-2	11	-35.0	35.0	-24.0	24.0	0.3576	pass
0.400	-2	11	-35.0	35.0	-24.0	24.0	0.3976	pass
0.440	-3	12	-35.0	35.0	-23.0	23.0	0.4374	pass
0.480	-2	12	-35.0	35.0	-23.0	23.0	0.4776	pass
0.520	-3	12	-35.0	35.0	-23.0	23.0	0.5170	pass
0.560	-3	13	-35.0	35.0	-22.0	22.0	0.5570	pass
0.600	-5	13	-35.0	35.0	-22.0	22.0	0.5953	pass
0.640	-3	13	-35.0	35.0	-22.0	22.0	0.6369	pass
0.680	-3	13	-35.0	35.0	-22.0	22.0	0.6768	pass
0.720	-4	14	-35.0	35.0	-21.0	21.0	0.7162	pass
0.760	-2	14	-35.0	35.0	-21.0	21.0	0.7577	pass
0.800	-5	14	-35.0	35.0	-21.0	21.0	0.7946	pass
0.840	-4	14	-35.0	35.0	-21.0	21.0	0.8357	pass
0.880	-3	14	-35.0	35.0	-21.0	21.0	0.8771	pass
0.920	-3	14	-35.0	35.0	-21.0	21.0	0.9170	pass
0.960	-4	14	-35.0	35.0	-21.0	21.0	0.9564	pass
1.000	-5	14	-35.1	35.1	-21.1	21.1	0.9947	pass
1.040	-5	14	-35.1	35.1	-21.1	21.1	1.0350	pass
1.080	-4	14	-35.1	35.1	-21.1	21.1	1.0756	pass
1.120	-5	14	-35.1	35.1	-21.1	21.1	1.1155	pass
1.160	-4	14	-35.1	35.1	-21.1	21.1	1.1556	pass
1.200	-4	14	-35.1	35.1	-21.1	21.1	1.1964	pass
1.240	-4	14	-35.1	35.1	-21.1	21.1	1.2357	pass
1.280	-5	14	-35.1	35.1	-21.1	21.1	1.2745	pass
1.320	-5	14	-35.1	35.1	-21.1	21.1	1.3150	pass
1.360	-5	14	-35.1	35.1	-21.1	21.1	1.3550	pass
1.400	-6	14	-35.1	35.1	-21.1	21.1	1.3943	pass
1.440	-6	14	-35.1	35.1	-21.1	21.1	1.4342	pass
1.480	-5	14	-35.1	35.1	-21.1	21.1	1.4751	pass
1.520	-5	14	-35.1	35.1	-21.1	21.1	1.5155	pass
1.560	-4	14	-35.1	35.1	-21.1	21.1	1.5561	pass
1.600	-5	14	-35.1	35.1	-21.1	21.1	1.5948	pass

Parameters

Relative Delay Accuracy = (Measured Delay - Measured Reference Delay) - Expected Relative Delay

Specification: $\pm 35\text{ps}$ and $\pm 50\text{ppm}$

Frequency: 10MHz

Offset: 0V

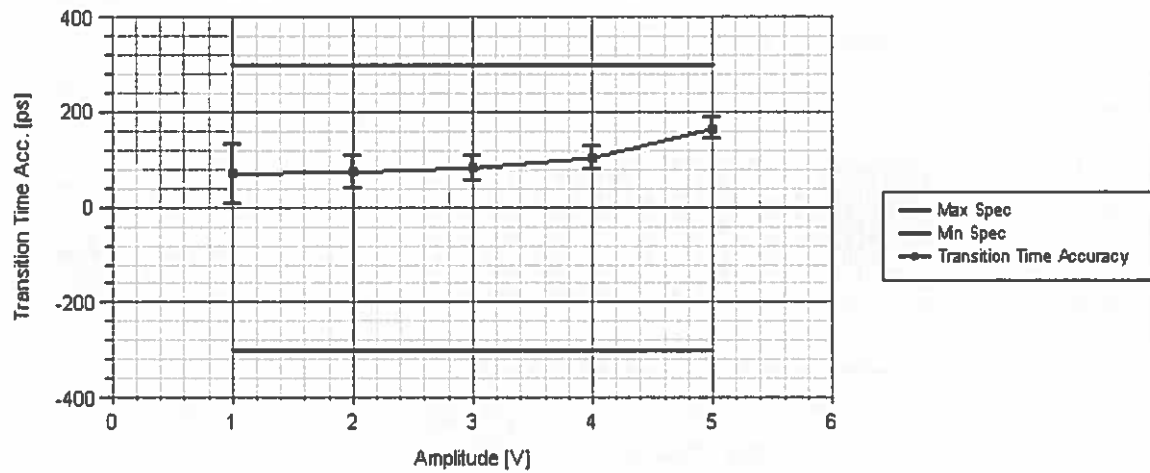
Amplitude: 5Vpp

Transition Time Rising Edge = Transition Time Falling Edge = 2.0ns

Averages: 25

Coarse delay steps of 400ps are generated digitally based on internal clock of 2.5GHz. Hence the accuracy of coarse delay only depends on frequency accuracy

Transition Time Accuracy vrs. Amplitude (Channel 2. Out. Rising Edge)



Amplitude [V]	Transition Time Accuracy [ps]	Uncertainty Transition Time Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Transition Time [ns]	Status
1	70	63	-300	300	-237	237	1.070	pass
2	73	35	-300	300	-265	265	1.073	pass
3	82	27	-300	300	-273	273	1.082	pass
4	103	23	-300	300	-277	277	1.103	pass
5	164	22	-300	300	-278	278	1.164	pass

Parameters

Transition times measured from 10% to 90%

Specification: $\pm 300\text{ps}$ and $\pm 50\text{ppm}$

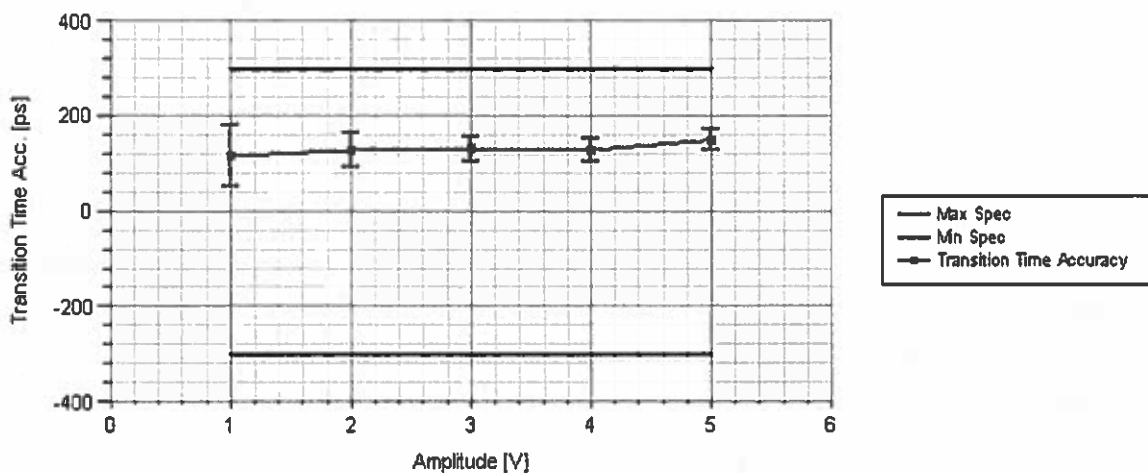
Transition Time Accuracy = Measured Transition Time - Expected Transition Time

Frequency: 5MHz

Expected Transition Time: 1ns

Averages: 10

Transition Time Accuracy vrs. Amplitude (Channel 2, Out, Falling Edge)



Amplitude [V]	Transition Time Accuracy [ps]	Uncertainty Transition Time Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Transition Time [ns]	Status
1	115	65	-300	300	-235	235	1.115	pass
2	128	36	-300	300	-264	264	1.128	pass
3	130	27	-300	300	-273	273	1.130	pass
4	128	24	-300	300	-276	276	1.128	pass
5	149	22	-300	300	-278	278	1.149	pass

Parameters

Transition times measured from 10% to 90%

Specification: $\pm 300\text{ps}$ and $\pm 50\text{ppm}$

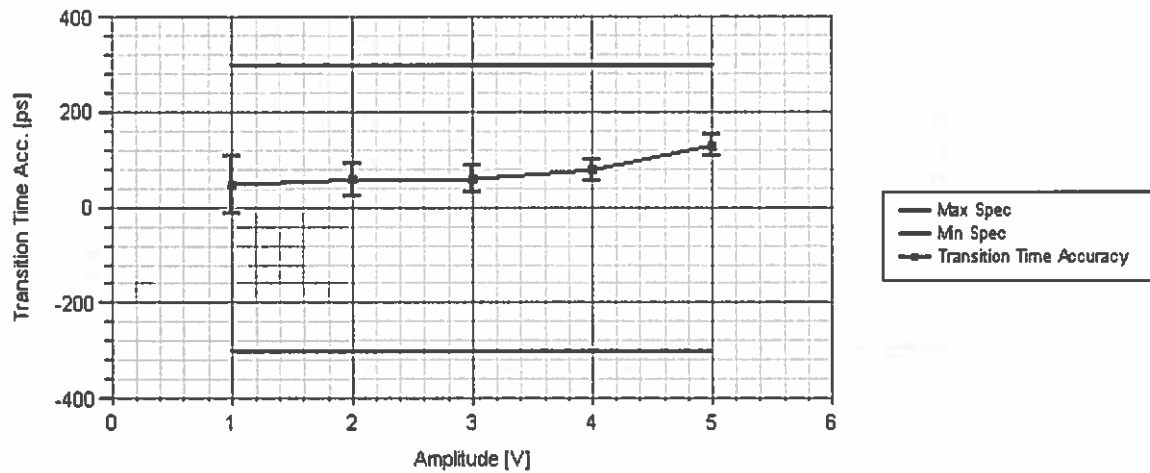
Transition Time Accuracy = Measured Transition Time - Expected Transition Time

Frequency: 5MHz

Expected Transition Time: 1ns

Averages: 10

Transition Time Accuracy vrs. Amplitude (Channel 2, notOut, Rising Edge)



Amplitude [V]	Transition Time Accuracy [ps]	Uncertainty Transition Time Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Transition Time [ns]	Status
1	47	60	-300	300	-240	240	1.047	pass
2	57	34	-300	300	-266	266	1.057	pass
3	59	27	-300	300	-273	273	1.059	pass
4	78	23	-300	300	-277	277	1.078	pass
5	129	22	-300	300	-278	278	1.129	pass

Parameters

Transition times measured from 10% to 90%

Specification: $\pm 300\text{ps}$ and $\pm 50\text{ppm}$

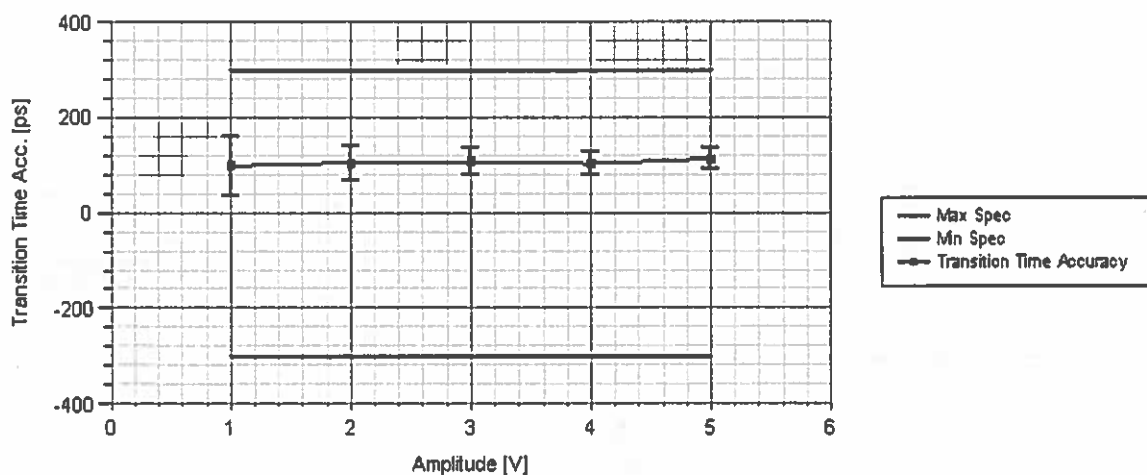
Transition Time Accuracy = Measured Transition Time - Expected Transition Time

Frequency: 5MHz

Expected Transition Time: 1ns

Averages: 10

Transition Time Accuracy vrs. Amplitude (Channel 2, notOut, Falling Edge)



Amplitude [V]	Transition Time Accuracy [ps]	Uncertainty Transition Time Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Transition Time [ns]	Status
1	98	63	-300	300	-237	237	1.098	pass
2	105	36	-300	300	-264	264	1.105	pass
3	107	27	-300	300	-273	273	1.107	pass
4	103	23	-300	300	-277	277	1.103	pass
5	113	21	-300	300	-279	279	1.113	pass

Parameters

Transition times measured from 10% to 90%

Specification: $\pm 300\text{ps}$ and $\pm 50\text{ppm}$

Transition Time Accuracy = Measured Transition Time - Expected Transition Time

Frequency: 5MHz

Expected Transition Time: 1ns

Averages: 10

Pulse Width Accuracy (Channel 2, Out)



Pulse Width (Expected) [ns]	Pulse Width Accuracy [ps]	Uncertainty Pulse Width Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Pulse Width [ns]	Status
1.500	40	40	-300	300	-260	260	1.540	pass
10.000	-22	46	-301	301	-255	255	9.978	pass
20.000	-4	57	-301	301	-244	244	19.996	pass
30.000	-6	70	-302	302	-232	232	29.994	pass
40.000	-8	85	-302	302	-217	217	39.992	pass
50.000	0	100	-303	303	-203	203	50.000	pass
60.000	-10	120	-303	303	-183	183	59.988	pass
70.000	-10	140	-304	304	-164	164	69.986	pass
80.000	-10	150	-304	304	-154	154	79.994	pass
90.000	10	170	-305	305	-135	135	90.012	pass
98.500	-40	180	-305	305	-125	125	98.460	pass

Parameters

Pulse Width Accuracy = Measured Pulse Width - Expected Pulse Width

Definition of Pulse Width: time interval between the intersections of the rising edge and the following falling edge with the 50% reference level

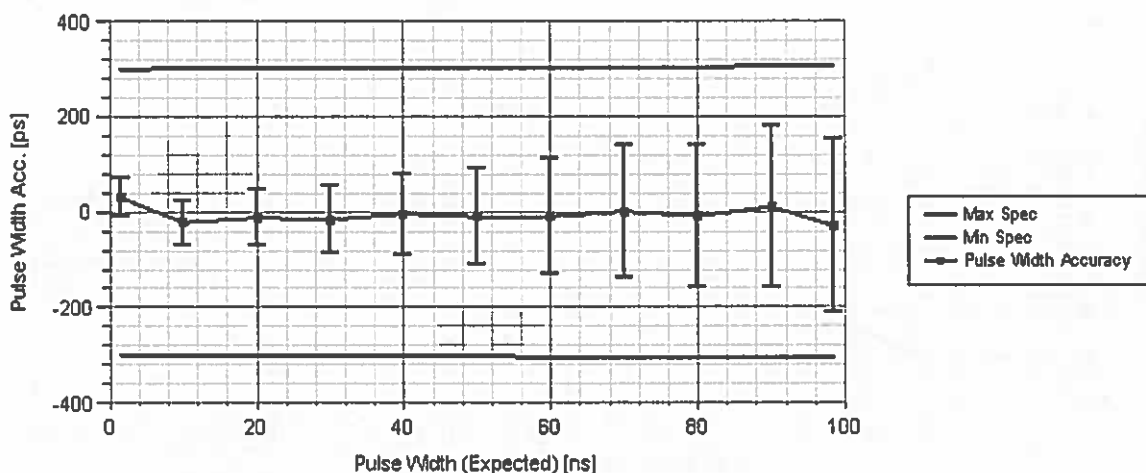
Specification: ± 300 ps and ± 50 ppm

Frequency: 10MHz

Amplitude: 5Vpp

Transition Time Rising Edge = Transition Time Falling Edge = 1.0ns

Pulse Width Accuracy (Channel 2, notOut)



Pulse Width (Expected) [ns]	Pulse Width Accuracy [ps]	Uncertainty Pulse Width Accuracy [ps]	Min Spec [ps]	Max Spec [ps]	Min. Accept. [ps]	Max. Accept. [ps]	Meas. Pulse Width [ns]	Status
1.500	30	40	-300	300	-260	260	1.530	pass
10.000	-22	46	-301	301	-255	255	9.978	pass
20.000	-12	57	-301	301	-244	244	19.988	pass
30.000	-16	70	-302	302	-232	232	29.984	pass
40.000	-4	85	-302	302	-217	217	39.996	pass
50.000	-10	100	-303	303	-203	203	49.990	pass
60.000	-10	120	-303	303	-183	183	59.988	pass
70.000	0	140	-304	304	-164	164	69.996	pass
80.000	-10	150	-304	304	-154	154	79.994	pass
90.000	10	170	-305	305	-135	135	90.012	pass
98.500	-30	180	-305	305	-125	125	98.470	pass

Parameters

Pulse Width Accuracy = Measured Pulse Width - Expected Pulse Width

Definition of Pulse Width: time interval between the intersections of the rising edge and the following falling edge with the 50% reference level

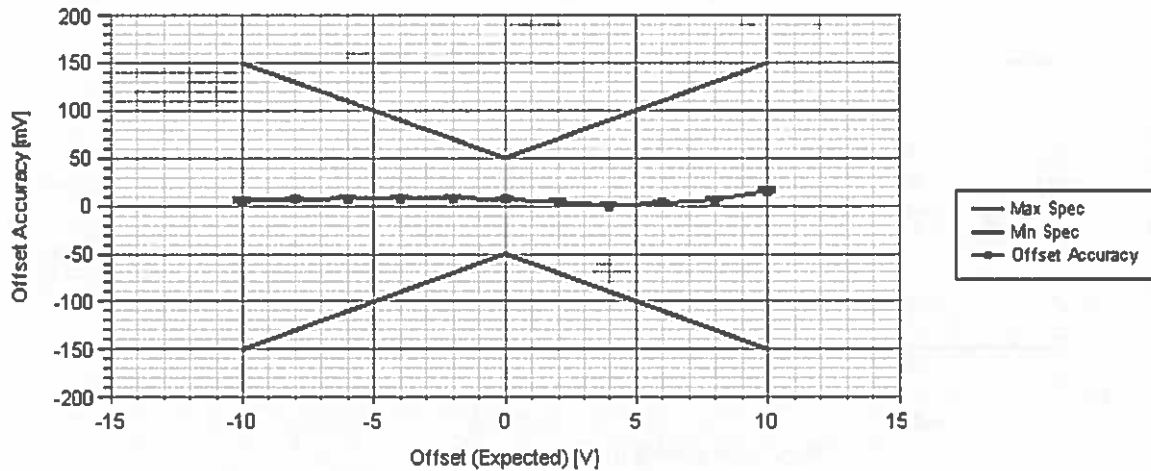
Specification: ± 300 ps and ± 50 ppm

Frequency: 10MHz

Amplitude: 5Vpp

Transition Time Rising Edge = Transition Time Falling Edge = 1.0ns

DC Offset Accuracy (Channel 1, Out, 50Ohm into open)



Offset (Expected) [V]	Offset Accuracy [mV]	Uncertainty Offset Accuracy [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Offset [V]	Status
-10	5.3	1.7	-150.0	150.0	-148.3	148.3	-9.9947	pass
-8	6.7	1.1	-130.0	130.0	-128.9	128.9	-7.9933	pass
-6	7.8	1.1	-110.0	110.0	-108.9	108.9	-5.9922	pass
-4	7.47	0.99	-90.0	90.0	-89.0	89.0	-3.9925	pass
-2	8.22	0.97	-70.0	70.0	-69.0	69.0	-1.9918	pass
0	6.44	0.96	-50.0	50.0	-49.0	49.0	0.0064	pass
2	3.68	0.97	-70.0	70.0	-69.0	69.0	2.0037	pass
4	0.14	0.99	-90.0	90.0	-89.0	89.0	4.0001	pass
6	2.4	1.1	-110.0	110.0	-108.9	108.9	6.0024	pass
8	6.2	1.1	-130.0	130.0	-128.9	128.9	8.0062	pass
10	15.7	1.7	-150.0	150.0	-148.3	148.3	10.0157	pass

Parameters

Offset Accuracy = Measured Offset - Expected Offset

Specification: $\pm 50\text{mV}$ and $\pm 1\%$

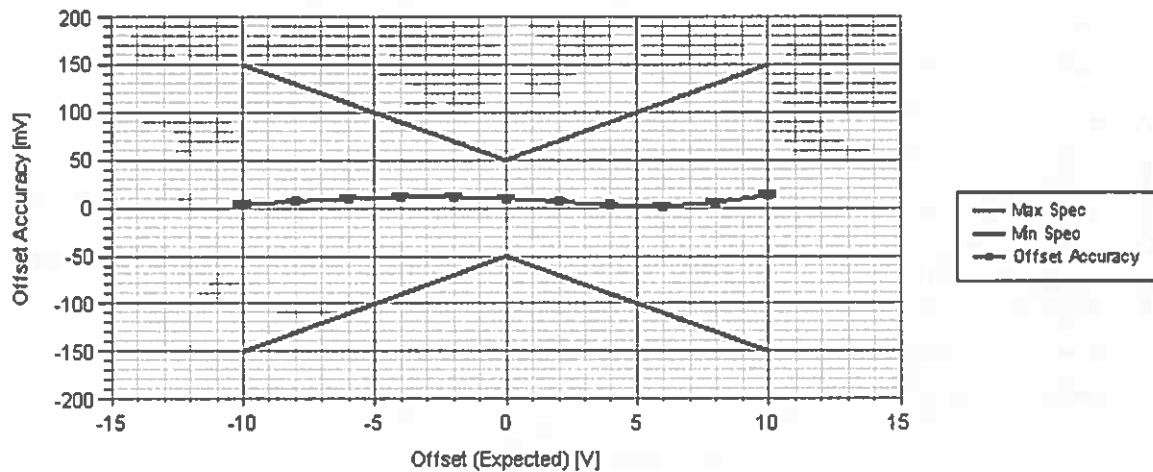
Load Impedance setting: 1MOhm (maximum value to be set)

Measured in DC mode

Amplitude Setting: 1.0V

Level Settling Time: 0.5s

DC Offset Accuracy (Channel 1, notOut, 50Ohm into open)



Offset (Expected) [V]	Offset Accuracy [mV]	Uncertainty Offset Accuracy [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Offset [V]	Status
-10	3.4	1.7	-150.0	150.0	-148.3	148.3	-9.9966	pass
-8	6.8	1.1	-130.0	130.0	-128.9	128.9	-7.9932	pass
-6	9.7	1.1	-110.0	110.0	-108.9	108.9	-5.9903	pass
-4	11.41	0.99	-90.0	90.0	-89.0	89.0	-3.9886	pass
-2	11.73	0.97	-70.0	70.0	-69.0	69.0	-1.9883	pass
0	9.91	0.96	-50.0	50.0	-49.0	49.0	0.0099	pass
2	6.61	0.97	-70.0	70.0	-69.0	69.0	2.0066	pass
4	2.70	0.99	-90.0	90.0	-89.0	89.0	4.0027	pass
6	1.9	1.1	-110.0	110.0	-108.9	108.9	6.0019	pass
8	5.8	1.1	-130.0	130.0	-128.9	128.9	8.0058	pass
10	13.3	1.7	-150.0	150.0	-148.3	148.3	10.0133	pass

Parameters

Offset Accuracy = Measured Offset - Expected Offset

Specification: $\pm 50\text{mV}$ and $\pm 1\%$

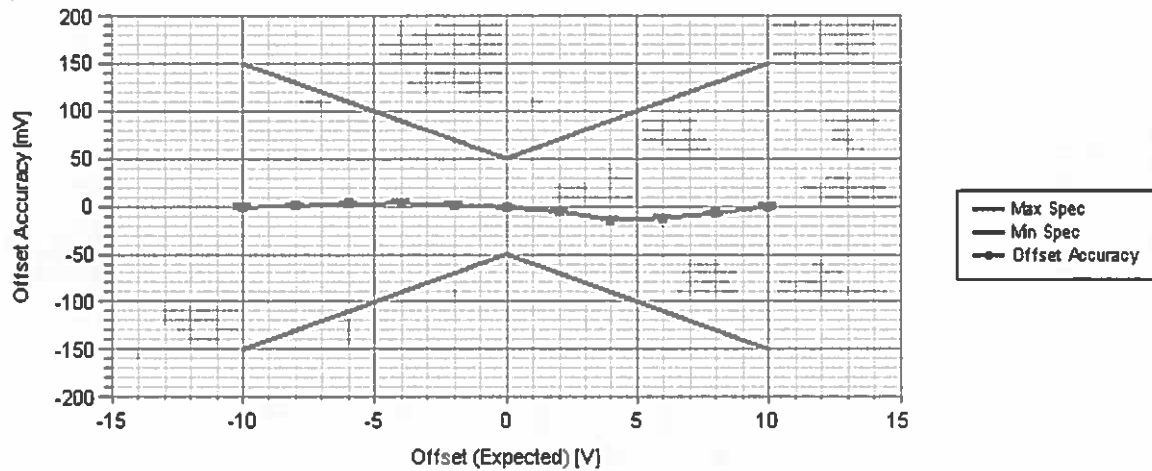
Load Impedance setting: 1MOhm (maximum value to be set)

Measured in DC mode

Amplitude Setting: 1.0V

Level Settling Time: 0.5s

DC Offset Accuracy (Channel 2, Out. 50Ohm into open)



Offset (Expected) [V]	Offset Accuracy [mV]	Uncertainty Offset Accuracy [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Offset [V]	Status
-10	-1.3	1.7	-150.0	150.0	-148.3	148.3	-10.0013	pass
-8	1.0	1.1	-130.0	130.0	-128.9	128.9	-7.9990	pass
-6	2.5	1.1	-110.0	110.0	-108.9	108.9	-5.9975	pass
-4	3.84	0.99	-90.0	90.0	-89.0	89.0	-3.9962	pass
-2	1.43	0.97	-70.0	70.0	-69.0	69.0	-1.9986	pass
0	-1.14	0.96	-50.0	50.0	-49.0	49.0	-0.0011	pass
2	-5.55	0.97	-70.0	70.0	-69.0	69.0	1.9945	pass
4	-14.03	0.99	-90.0	90.0	-89.0	89.0	3.9860	pass
6	-12.4	1.1	-110.0	110.0	-108.9	108.9	5.9876	pass
8	-7.3	1.1	-130.0	130.0	-128.9	128.9	7.9927	pass
10	-0.6	1.7	-150.0	150.0	-148.3	148.3	9.9994	pass

Parameters

Offset Accuracy = Measured Offset - Expected Offset

 Specification: $\pm 50\text{mV}$ and $\pm 1\%$

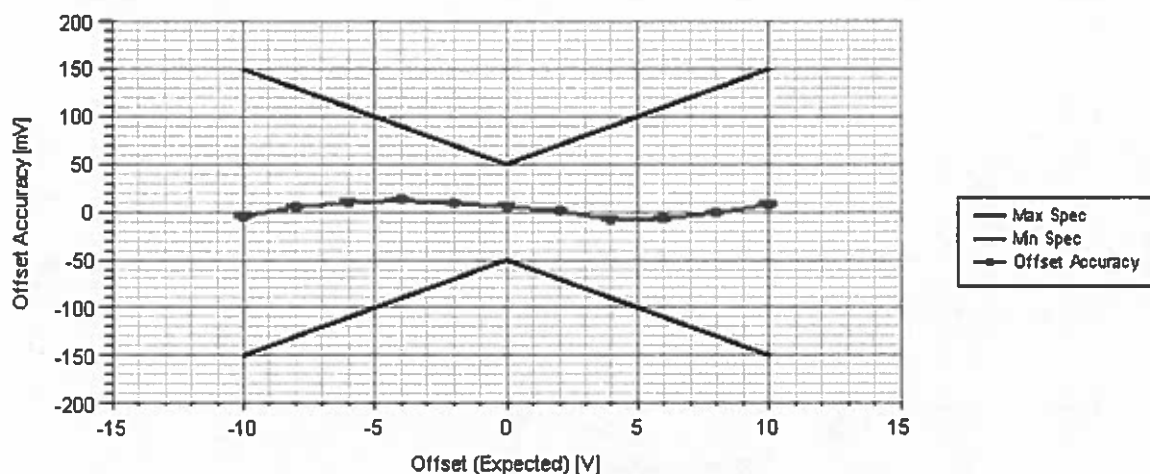
 Load Impedance setting: $1\text{M}\Omega$ (maximum value to be set)

Measured in DC mode

 Amplitude Setting: 1.0V

 Level Settling Time: 0.5s

DC Offset Accuracy (Channel 2, notOut, 50Ohm into open)



Offset (Expected) [V]	Offset Accuracy [mV]	Uncertainty Offset Accuracy [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Offset [V]	Status
-10	-4.8	1.7	-150.0	150.0	-148.3	148.3	-10.0048	pass
-8	4.8	1.1	-130.0	130.0	-128.9	128.9	-7.9952	pass
-6	9.6	1.1	-110.0	110.0	-108.9	108.9	-5.9904	pass
-4	12.34	0.99	-90.0	90.0	-89.0	89.0	-3.9877	pass
-2	8.89	0.97	-70.0	70.0	-69.0	69.0	-1.9911	pass
0	5.62	0.96	-50.0	50.0	-49.0	49.0	0.0056	pass
2	0.66	0.97	-70.0	70.0	-69.0	69.0	2.0007	pass
4	-8.61	0.99	-90.0	90.0	-89.0	89.0	3.9914	pass
6	-7.2	1.1	-110.0	110.0	-108.9	108.9	5.9928	pass
8	-1.2	1.1	-130.0	130.0	-128.9	128.9	7.9988	pass
10	7.7	1.7	-150.0	150.0	-148.3	148.3	10.0077	pass

Parameters

Offset Accuracy = Measured Offset - Expected Offset

Specification: $\pm 50\text{mV}$ and $\pm 1\%$

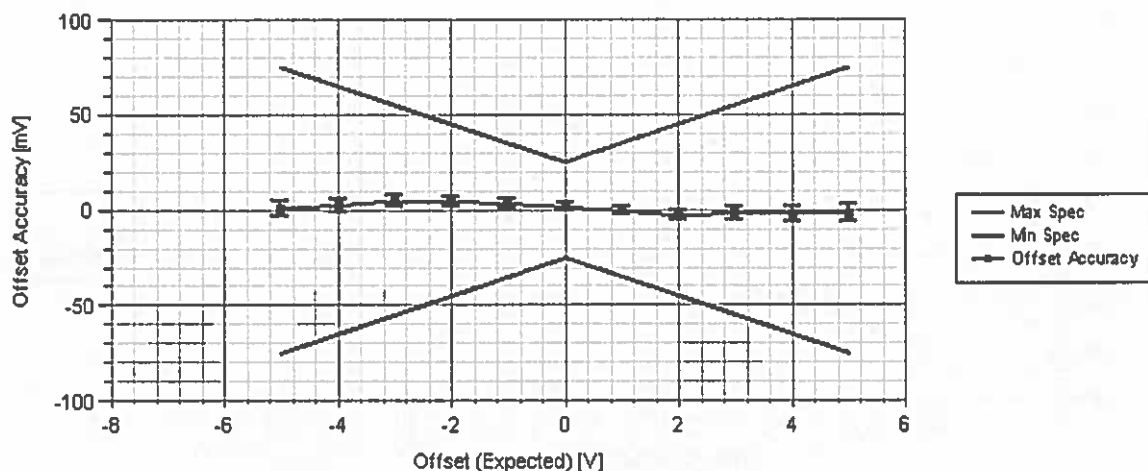
Load Impedance setting: $1\text{M}\Omega$ (maximum value to be set)

Measured in DC mode

Amplitude Setting: 1.0V

Level Settling Time: 0.5s

DC Offset Accuracy (Channel 1, Out, 50Ohm into 50 Ohm)



Offset (Expected) [V]	Offset Accuracy [mV]	Uncertainty Offset Accuracy [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Offset [V]	Status
-5	0.7	4.3	-75.0	75.0	-70.7	70.7	-4.9993	pass
-4	2.2	3.7	-65.0	65.0	-61.3	61.3	-3.9978	pass
-3	4.6	3.1	-55.0	55.0	-51.9	51.9	-2.9954	pass
-2	4.2	2.6	-45.0	45.0	-42.4	42.4	-1.9958	pass
-1	3.2	2.2	-35.0	35.0	-32.8	32.8	-0.9968	pass
0	1.3	2.1	-25.0	25.0	-22.9	22.9	0.0013	pass
1	-0.6	2.2	-35.0	35.0	-32.8	32.8	0.9994	pass
2	-3.1	2.6	-45.0	45.0	-42.4	42.4	1.9969	pass
3	-1.8	3.1	-55.0	55.0	-51.9	51.9	2.9982	pass
4	-2.3	3.7	-65.0	65.0	-61.3	61.3	3.9977	pass
5	-2.1	4.3	-75.0	75.0	-70.7	70.7	4.9979	pass

Parameters

Offset Accuracy = Measured Offset - Expected Offset

Specification: $\pm 25\text{mV}$ and $\pm 1\%$

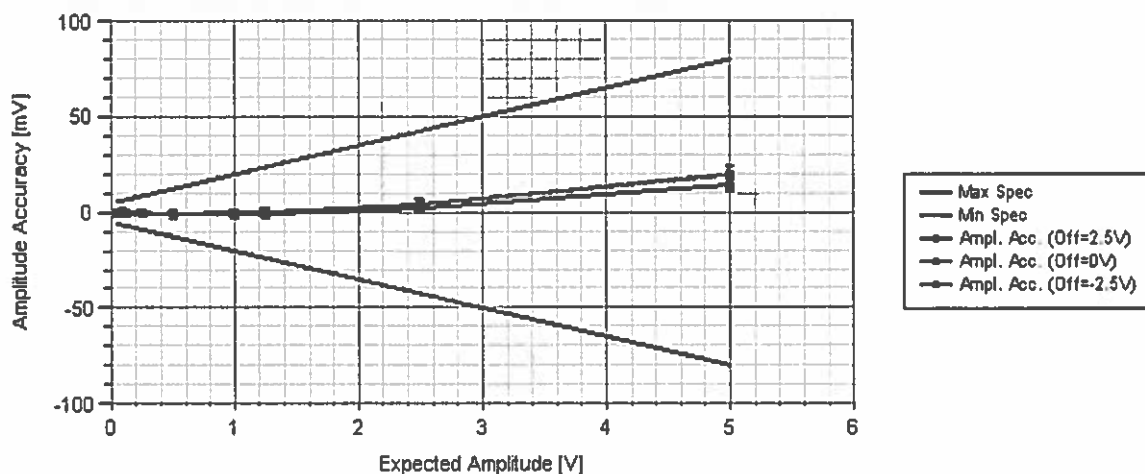
Load Impedance setting: 50.0Ohm

Measured in DC mode

Amplitude Setting: 1.0V

Level Settling Time: 0.5s

DC Amplitude Accuracy (Channel 1, Out, 50Ohm into 50 Ohm)



Parameters

Amplitude Accuracy = Measured Amplitude - Expected Amplitude

Specification: $\pm 5\text{mV}$ and $\pm 1.5\%$ (of amplitude)

Load Impedance setting: 50.0Ohm

Offset setting: 0.0V

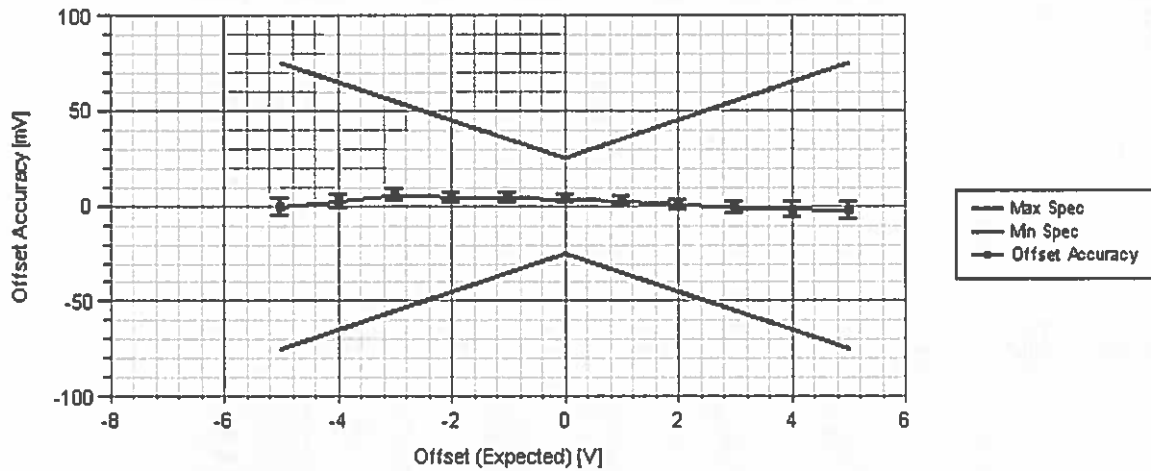
Period: 100s

Amplitude (Expected) [V]	Ampl. Acc. (Off=-2.5V) [mV]	Uncertainty Ampl. Acc. (Off=-2.5V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	0.04	0.64	-5.8	5.8	-5.1	5.1	0.0500	pass
0.100	0.17	0.64	-6.5	6.5	-5.9	5.9	0.1002	pass
0.125	0.13	0.65	-6.9	6.9	-6.2	6.2	0.1251	pass
0.250	-0.20	0.67	-8.8	8.8	-8.1	8.1	0.2498	pass
0.500	-0.60	0.74	-12.5	12.5	-11.8	11.8	0.4994	pass
1.000	-0.10	0.98	-20.0	20.0	-19.0	19.0	0.9999	pass
1.250	0.1	1.2	-23.8	23.8	-22.6	22.6	1.2501	pass
2.500	4.2	2.0	-42.5	42.5	-40.5	40.5	2.5042	pass
5.000	19.5	3.9	-80.0	80.0	-76.1	76.1	5.0195	pass

Amplitude (Expected) [V]	Ampl. Acc. (Off=0V) [mV]	Uncertainty Ampl. Acc. (Off=0V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-0.14	0.59	-5.8	5.8	-5.2	5.2	0.0499	pass
0.100	-0.06	0.60	-6.5	6.5	-5.9	5.9	0.0999	pass
0.125	-0.08	0.60	-6.9	6.9	-6.3	6.3	0.1249	pass
0.250	-0.19	0.62	-8.8	8.8	-8.1	8.1	0.2498	pass
0.500	-0.55	0.70	-12.5	12.5	-11.8	11.8	0.4994	pass
1.000	-0.05	0.95	-20.0	20.0	-19.1	19.1	1.0000	pass
1.250	0.2	1.2	-23.8	23.8	-22.6	22.6	1.2502	pass
2.500	4.3	2.0	-42.5	42.5	-40.5	40.5	2.5043	pass
5.000	19.9	3.8	-80.0	80.0	-76.2	76.2	5.0199	pass

Amplitude (Expected) [V]	Ampl. Acc. (Off=2.5V) [mV]	Uncertainty Ampl. Acc. (Off=2.5V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-0.58	0.64	-5.8	5.8	-5.1	5.1	0.0494	pass
0.100	-0.54	0.64	-6.5	6.5	-5.9	5.9	0.0995	pass
0.125	-0.43	0.65	-6.9	6.9	-6.2	6.2	0.1246	pass
0.250	-0.57	0.67	-8.8	8.8	-8.1	8.1	0.2494	pass
0.500	-1.09	0.74	-12.5	12.5	-11.8	11.8	0.4989	pass
1.000	-0.93	0.98	-20.0	20.0	-19.0	19.0	0.9991	pass
1.250	-0.9	1.2	-23.8	23.8	-22.6	22.6	1.2491	pass
2.500	2.1	2.0	-42.5	42.5	-40.5	40.5	2.5021	pass
5.000	14.2	3.9	-80.0	80.0	-76.1	76.1	5.0142	pass

DC Offset Accuracy (Channel 1, notOut, 50Ohm into 50 Ohm)



Offset (Expected) [V]	Offset Accuracy [mV]	Uncertainty Offset Accuracy [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Offset [V]	Status
-5	-0.6	4.3	-75.0	75.0	-70.7	70.7	-5.0006	pass
-4	2.2	3.7	-65.0	65.0	-61.3	61.3	-3.9978	pass
-3	5.5	3.1	-55.0	55.0	-51.9	51.9	-2.9945	pass
-2	4.5	2.6	-45.0	45.0	-42.4	42.4	-1.9955	pass
-1	4.1	2.2	-35.0	35.0	-32.8	32.8	-0.9959	pass
0	3.4	2.1	-25.0	25.0	-22.9	22.9	0.0034	pass
1	2.3	2.2	-35.0	35.0	-32.8	32.8	1.0023	pass
2	0.4	2.6	-45.0	45.0	-42.4	42.4	2.0004	pass
3	-1.4	3.1	-55.0	55.0	-51.9	51.9	2.9986	pass
4	-2.2	3.7	-65.0	65.0	-61.3	61.3	3.9978	pass
5	-2.6	4.3	-75.0	75.0	-70.7	70.7	4.9974	pass

Parameters

Offset Accuracy = Measured Offset - Expected Offset

Specification: $\pm 25\text{mV}$ and $\pm 1\%$

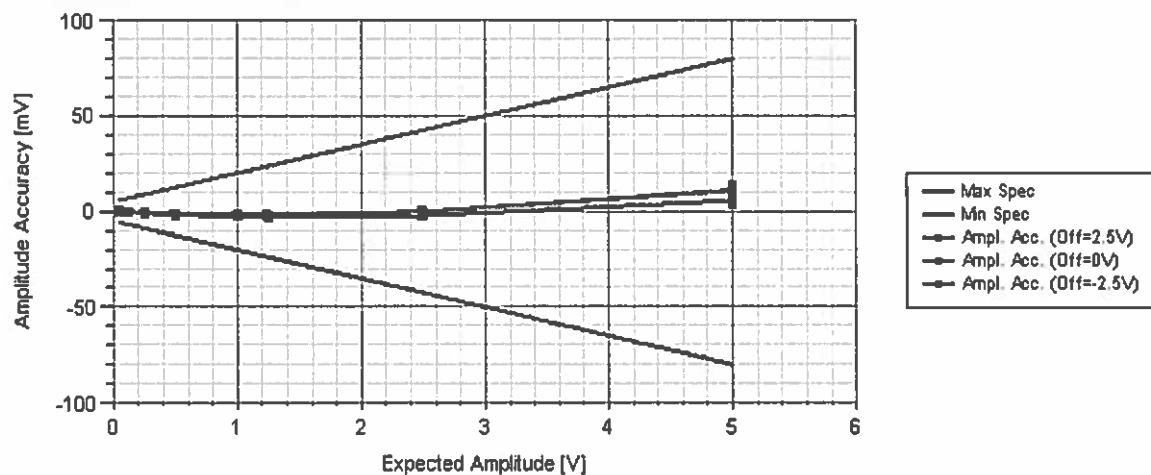
Load Impedance setting: 50.0Ohm

Measured in DC mode

Amplitude Setting: 1.0V

Level Settling Time: 0.5s

DC Amplitude Accuracy (Channel 1, notOut, 50Ohm into 50 Ohm)



Parameters

Amplitude Accuracy = Measured Amplitude - Expected Amplitude

Specification: $\pm 5\text{mV}$ and $\pm 1.5\%$ (of amplitude)

Load Impedance setting: 50.0Ohm

Offset setting: 0.0V

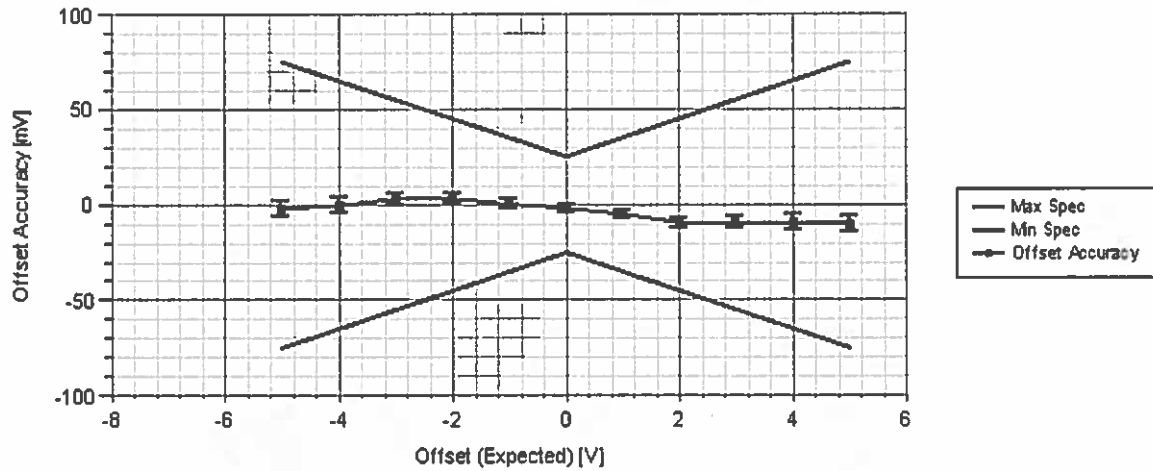
Period: 100s

Amplitude (Expected) [V]	Ampl. Acc. (Off=-2.5V) [mV]	Uncertainty Ampl. Acc. (Off=-2.5V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	0.20	0.64	-5.8	5.8	-5.1	5.1	0.0502	pass
0.100	0.12	0.64	-6.5	6.5	-5.9	5.9	0.1001	pass
0.125	-0.09	0.65	-6.9	6.9	-6.2	6.2	0.1249	pass
0.250	-0.58	0.67	-8.8	8.8	-8.1	8.1	0.2494	pass
0.500	-1.36	0.74	-12.5	12.5	-11.8	11.8	0.4986	pass
1.000	-1.86	0.98	-20.0	20.0	-19.0	19.0	0.9981	pass
1.250	-1.9	1.2	-23.8	23.8	-22.6	22.6	1.2481	pass
2.500	-0.2	2.0	-42.5	42.5	-40.5	40.5	2.4998	pass
5.000	10.6	3.9	-80.0	80.0	-76.1	76.1	5.0106	pass

Amplitude (Expected) [V]	Ampl. Acc. (Off=0V) [mV]	Uncertainty Ampl. Acc. (Off=0V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-0.18	0.59	-5.8	5.8	-5.2	5.2	0.0498	pass
0.100	-0.24	0.60	-6.5	6.5	-5.9	5.9	0.0998	pass
0.125	-0.23	0.60	-6.9	6.9	-6.3	6.3	0.1248	pass
0.250	-0.61	0.62	-8.8	8.8	-8.1	8.1	0.2494	pass
0.500	-1.40	0.70	-12.5	12.5	-11.8	11.8	0.4986	pass
1.000	-1.80	0.95	-20.0	20.0	-19.1	19.1	0.9982	pass
1.250	-1.9	1.1	-23.8	23.8	-22.7	22.7	1.2481	pass
2.500	0.0	2.0	-42.5	42.5	-40.5	40.5	2.5000	pass
5.000	11.2	3.8	-80.0	80.0	-76.2	76.2	5.0112	pass

Amplitude (Expected) [V]	Ampl. Acc. (Off=2.5V) [mV]	Uncertainty Ampl. Acc. (Off=2.5V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-0.71	0.64	-5.8	5.8	-5.1	5.1	0.0493	pass
0.100	-0.65	0.64	-6.5	6.5	-5.9	5.9	0.0993	pass
0.125	-0.61	0.65	-6.9	6.9	-6.2	6.2	0.1244	pass
0.250	-1.05	0.67	-8.8	8.8	-8.1	8.1	0.2489	pass
0.500	-2.01	0.74	-12.5	12.5	-11.8	11.8	0.4980	pass
1.000	-2.82	0.98	-20.0	20.0	-19.0	19.0	0.9972	pass
1.250	-3.1	1.2	-23.8	23.8	-22.6	22.6	1.2469	pass
2.500	-2.4	2.0	-42.5	42.5	-40.5	40.5	2.4976	pass
5.000	5.5	3.9	-80.0	80.0	-76.1	76.1	5.0055	pass

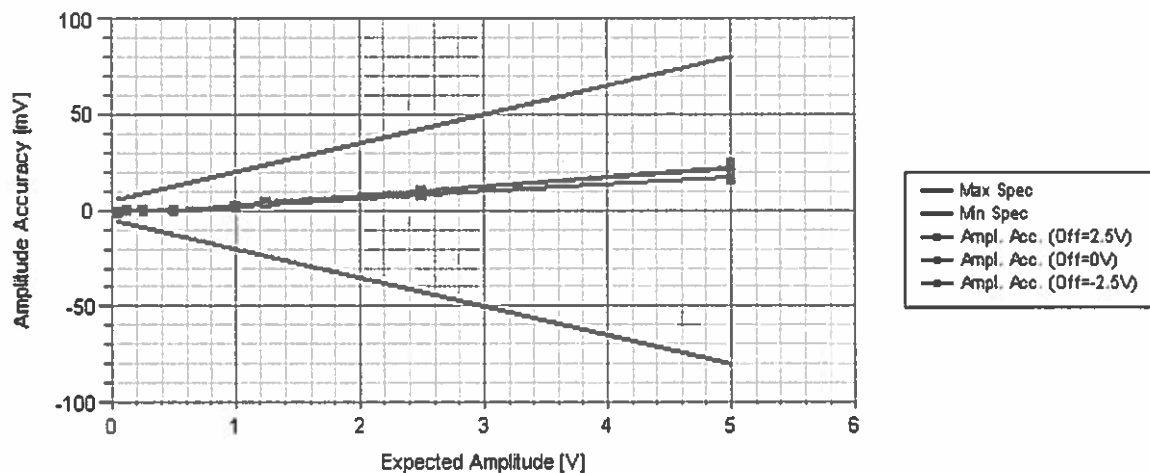
DC Offset Accuracy (Channel 2, Out. 50Ohm into 50 Ohm)



Parameters

Offset Accuracy = Measured Offset - Expected Offset
 Specification: $\pm 25\text{mV}$ and $\pm 1\%$
 Load Impedance setting: 50.0Ohm
 Measured in DC mode
 Amplitude Setting: 1.0V
 Level Settling Time: 0.5s

DC Amplitude Accuracy (Channel 2, Out. 50Ohm into 50 Ohm)



Parameters

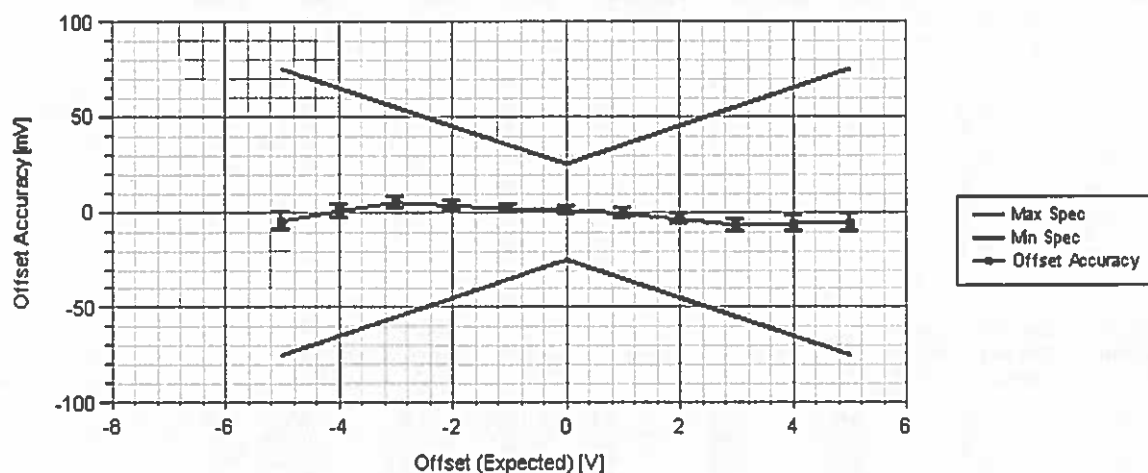
Amplitude Accuracy = Measured Amplitude - Expected Amplitude
 Specification: $\pm 5\text{mV}$ and $\pm 1.5\%$ (of amplitude)
 Load Impedance setting: 50.0Ohm
 Offset setting: 0.0V
 Period: 100s

Amplitude (Expected) [V]	Ampl. Acc. (Off=-2.5V) [mV]	Uncertainty Ampl. Acc. (Off=-2.5V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-0.53	0.64	-5.8	5.8	-5.1	5.1	0.0495	pass
0.100	-0.09	0.64	-6.5	6.5	-5.9	5.9	0.0999	pass
0.125	0.32	0.65	-6.9	6.9	-6.2	6.2	0.1253	pass
0.250	0.70	0.67	-8.8	8.8	-8.1	8.1	0.2507	pass
0.500	0.24	0.74	-12.5	12.5	-11.8	11.8	0.5002	pass
1.000	2.49	0.99	-20.0	20.0	-19.0	19.0	1.0025	pass
1.250	4.4	1.2	-23.8	23.8	-22.6	22.6	1.2544	pass
2.500	10.0	2.0	-42.5	42.5	-40.5	40.5	2.5100	pass
5.000	21.6	3.9	-80.0	80.0	-76.1	76.1	5.0216	pass

Amplitude (Expected) [V]	Ampl. Acc. (Off=0V) [mV]	Uncertainty Ampl. Acc. (Off=0V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-0.51	0.59	-5.8	5.8	-5.2	5.2	0.0495	pass
0.100	-0.19	0.60	-6.5	6.5	-5.9	5.9	0.0998	pass
0.125	0.00	0.60	-6.9	6.9	-6.3	6.3	0.1250	pass
0.250	0.44	0.62	-8.8	8.8	-8.1	8.1	0.2504	pass
0.500	0.21	0.70	-12.5	12.5	-11.8	11.8	0.5002	pass
1.000	2.47	0.95	-20.0	20.0	-19.1	19.1	1.0025	pass
1.250	4.3	1.2	-23.8	23.8	-22.6	22.6	1.2543	pass
2.500	10.2	2.0	-42.5	42.5	-40.5	40.5	2.5102	pass
5.000	22.4	3.8	-80.0	80.0	-76.2	76.2	5.0224	pass

Amplitude (Expected) [V]	Ampl. Acc. (Off=2.5V) [mV]	Uncertainty Ampl. Acc. (Off=2.5V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-1.12	0.64	-5.8	5.8	-5.1	5.1	0.0489	pass
0.100	-0.59	0.64	-6.5	6.5	-5.9	5.9	0.0994	pass
0.125	-0.23	0.65	-6.9	6.9	-6.2	6.2	0.1248	pass
0.250	0.07	0.67	-8.8	8.8	-8.1	8.1	0.2501	pass
0.500	-0.20	0.74	-12.5	12.5	-11.8	11.8	0.4998	pass
1.000	1.67	0.98	-20.0	20.0	-19.0	19.0	1.0017	pass
1.250	3.3	1.2	-23.8	23.8	-22.6	22.6	1.2533	pass
2.500	8.1	2.0	-42.5	42.5	-40.5	40.5	2.5081	pass
5.000	17.2	3.9	-80.0	80.0	-76.1	76.1	5.0172	pass

DC Offset Accuracy (Channel 2, notOut, 50Ohm into 50 Ohm)



Offset (Expected) [V]	Offset Accuracy [mV]	Uncertainty Offset Accuracy [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Offset [V]	Status
-5	-4.9	4.3	-75.0	75.0	-70.7	70.7	-5.0049	pass
-4	0.4	3.7	-65.0	65.0	-61.3	61.3	-3.9996	pass
-3	4.9	3.1	-55.0	55.0	-51.9	51.9	-2.9951	pass
-2	3.3	2.6	-45.0	45.0	-42.4	42.4	-1.9967	pass
-1	1.6	2.2	-35.0	35.0	-32.8	32.8	-0.9984	pass
0	0.8	2.1	-25.0	25.0	-22.9	22.9	0.0008	pass
1	-0.8	2.2	-35.0	35.0	-32.8	32.8	0.9992	pass
2	-4.0	2.6	-45.0	45.0	-42.4	42.4	1.9960	pass
3	-7.1	3.1	-55.0	55.0	-51.9	51.9	2.9929	pass
4	-6.3	3.7	-65.0	65.0	-61.3	61.3	3.9937	pass
5	-6.0	4.3	-75.0	75.0	-70.7	70.7	4.9940	pass

Parameters

Offset Accuracy = Measured Offset - Expected Offset

Specification: $\pm 25\text{mV}$ and $\pm 1\%$

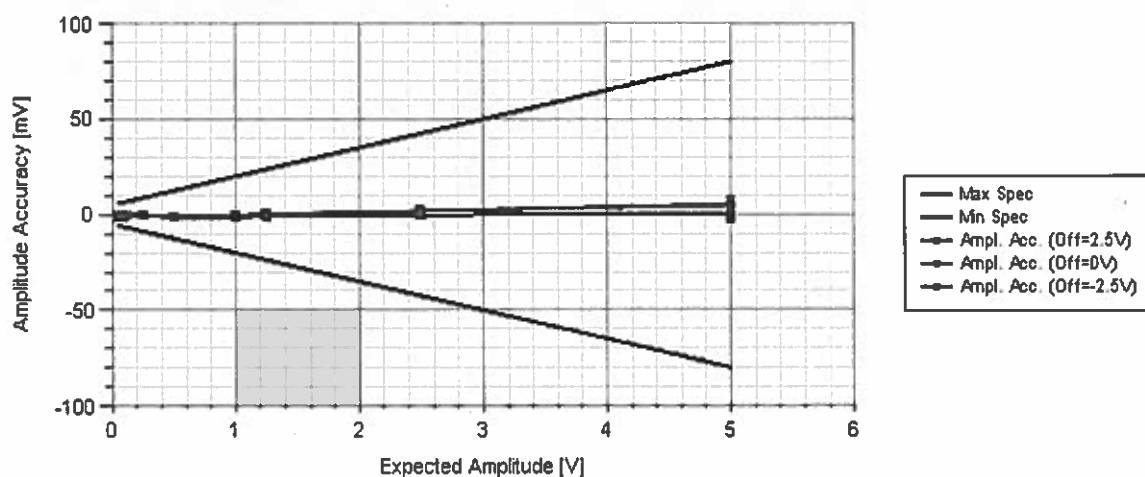
Load Impedance setting: 50.0Ohm

Measured in DC mode

Amplitude Setting: 1.0V

Level Settling Time: 0.5s

DC Amplitude Accuracy (Channel 2, notOut, 50Ohm into 50 Ohm)



Parameters

Amplitude Accuracy = Measured Amplitude - Expected Amplitude

Specification: $\pm 5\text{mV}$ and $\pm 1.5\%$ (of amplitude)

Load Impedance setting: 50.0Ohm

Offset setting: 0.0V

Period: 100s

Amplitude (Expected) [V]	Ampl. Acc. (Off=-2.5V) [mV]	Uncertainty Ampl. Acc. (Off=-2.5V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-0.41	0.64	-5.8	5.8	-5.1	5.1	0.0496	pass
0.100	-0.35	0.64	-6.5	6.5	-5.9	5.9	0.0996	pass
0.125	-0.13	0.65	-6.9	6.9	-6.2	6.2	0.1249	pass
0.250	-0.17	0.67	-8.8	8.8	-8.1	8.1	0.2498	pass
0.500	-1.35	0.74	-12.5	12.5	-11.8	11.8	0.4986	pass
1.000	-0.61	0.98	-20.0	20.0	-19.0	19.0	0.9994	pass
1.250	0.1	1.2	-23.8	23.8	-22.6	22.6	1.2501	pass
2.500	1.7	2.0	-42.5	42.5	-40.5	40.5	2.5017	pass
5.000	4.8	3.9	-80.0	80.0	-76.1	76.1	5.0048	pass

Amplitude (Expected) [V]	Ampl. Acc. (Off=0V) [mV]	Uncertainty Ampl. Acc. (Off=0V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-0.69	0.59	-5.8	5.8	-5.2	5.2	0.0493	pass
0.100	-0.39	0.60	-6.5	6.5	-5.9	5.9	0.0996	pass
0.125	-0.44	0.60	-6.9	6.9	-6.3	6.3	0.1246	pass
0.250	-0.20	0.62	-8.8	8.8	-8.1	8.1	0.2498	pass
0.500	-1.36	0.70	-12.5	12.5	-11.8	11.8	0.4986	pass
1.000	-0.74	0.95	-20.0	20.0	-19.1	19.1	0.9993	pass
1.250	0.2	1.2	-23.8	23.8	-22.6	22.6	1.2502	pass
2.500	1.8	2.0	-42.5	42.5	-40.5	40.5	2.5018	pass
5.000	5.4	3.8	-80.0	80.0	-76.2	76.2	5.0054	pass

Amplitude (Expected) [V]	Ampl. Acc. (Off=2.5V) [mV]	Uncertainty Ampl. Acc. (Off=2.5V) [mV]	Min Spec [mV]	Max Spec [mV]	Min. Accept. [mV]	Max. Accept. [mV]	Meas. Amplitude [V]	Status
0.050	-1.25	0.64	-5.8	5.8	-5.1	5.1	0.0488	pass
0.100	-0.92	0.64	-6.5	6.5	-5.9	5.9	0.0991	pass
0.125	-0.69	0.65	-6.9	6.9	-6.2	6.2	0.1243	pass
0.250	-0.58	0.67	-8.8	8.8	-8.1	8.1	0.2494	pass
0.500	-1.85	0.74	-12.5	12.5	-11.8	11.8	0.4982	pass
1.000	-1.62	0.98	-20.0	20.0	-19.0	19.0	0.9984	pass
1.250	-1.0	1.2	-23.8	23.8	-22.6	22.6	1.2490	pass
2.500	-0.4	2.0	-42.5	42.5	-40.5	40.5	2.4996	pass
5.000	0.0	3.9	-80.0	80.0	-76.1	76.1	5.0000	pass

Functional Tests

Functional Test Results Summary

The following tests document the functional verification of the instruments' typical performance. This includes basic functionality – like e.g. interface tests – as well as performance of the key functional parameters. When acceptance limits are stated (a.k.a. "Max Limit" / "Min Limit", "Max. Accept." / "Min. Accept.", etc.) these are derived from the typical specifications. As typical performance limits are not warranted specifications, the test results are indicated as "o.k." when showing expected performance and "not o.k." otherwise.

In case functional verification tests result in "not o.k.", Keysight Technologies recommends repair to ensure that the equipment performs as expected.

Test Number	Functional Test Name	Status
81160325/1	USB Interface Check	o.k.
81160327/1	LAN Interface Check	o.k.
81160320/1	Extended Selftest Summary	o.k.
81160320/2	Power-On Selftest Summary	o.k.
81160342/1	Reference In PLL Lock Check	o.k.
81160340/1	Reference In Sensitivity	o.k.
81160340/2	Reference Out Amplitude	o.k.
81160360/1	External In Threshold Accuracy	o.k.
81160352/1	External In Sensitivity	o.k.
81160322/1	Sync A Level Accuracy	o.k.
81160322/2	Sync A Transition Times	o.k.
81160324/1	Sync B Level Accuracy	o.k.
81160324/2	Sync B Transition Times	o.k.
81160404/1	Modulation In Amplitude (Channel 1)	o.k.
81160404/2	Modulation In Transition Times (Channel 1)	o.k.
81160504/1	Modulation In Amplitude (Channel 2)	o.k.
81160504/2	Modulation In Transition Times (Channel 2)	o.k.
81160436/1	SSB Phase Noise (Channel 1, Out)	o.k.
81160437/1	Non Harmonic Distortion (Channel 1, Out)	o.k.
81160536/1	SSB Phase Noise (Channel 2, Out)	o.k.
81160537/1	Non Harmonic Distortion (Channel 2, Out)	o.k.
81160440/1	Overshoot (Channel 1, Out)	o.k.
81160441/1	Overshoot (Channel 1, notOut)	o.k.
81160419/1	Jitter (Main Out vs. Sync A, Channel 1)	o.k.
81160419/2	Jitter (Sync A vs. Sync A)	o.k.
81160419/3	Jitter (Sync B vs. Sync A)	o.k.
81160540/1	Overshoot (Channel 2, Out)	o.k.
81160541/1	Overshoot (Channel 2, notOut)	o.k.
81160519/1	Jitter (Main Out vs. Sync A, Channel 2)	o.k.

USB Interface Check

Interface	Status
USB (connector type A FRONT)	o.k.
USB (connector type A, REAR)	o.k.
USB (connector type B)	o.k.

LAN Interface Check

Status
o.k.

Extended Selftest Summary

Extended Selftest
o.k.

Power-On Selftest Summary

Power-On Selftest
o.k.

Reference In PLL Lock Check

Step	PLL State	External Frequency [MHz]	Meas. Frequency [MHz]	Meas. Frequency Acc. [ux/x]	Min Limit [ux/x]	Max Limit [ux/x]	Status
1	not locked	-	-	-	-	-	o.k.
2	locked	9.995000	9.994930	-7.0	-100	100	o.k.
3	not locked	-	-	-	-	-	o.k.
4	locked	10.005000	10.004930	-7.0	-100	100	o.k.
5	locked	9.995000	9.994930	-7.0	-100	100	o.k.
6	locked	10.005000	10.004930	-7.0	-100	100	o.k.

Parameters

Lock Range: 10 MHz $\pm$ 500 ppm typ.

Reference In Sensitivity

External Amplitude [V]	Rising edge rms-Jitter [ps]	Falling edge rms-Jitter [ps]	Max Limit [ps]	Status
3.000	5	4	15	o.k.
1.000	5	4	15	o.k.
0.200	4	4	15	o.k.

Parameters

External clock reference is used

Reference Out Amplitude

Expected Amplitude [V]	Meas. Amplitude [V]	Min Limit [V]	Max Limit [V]	Status
1.000	0.996	0.900	1.100	o.k.

External In Threshold Accuracy

Set Threshold [V]	Threshold Acc. [mV]	Min Limit [mV]	Max Limit [mV]	Meas. Threshold [V]	Status
-1.000	10	-100	100	-0.990	o.k.
0.000	20	-100	100	0.020	o.k.
1.000	10	-100	100	1.010	o.k.

Parameters

Input Impedance: 50ohm

Hysteresis: Low

External In Sensitivity

External Amplitude [V]	Rising edge rms-Jitter [ps]	Falling edge rms-Jitter [ps]	Max Limit [ps]	Status
3.000	14	12	18	o.k.
1.000	14	12	18	o.k.
0.200	14	13	25	o.k.

Parameters

Specification: Input sensitivity 200mV

Input Impedance: 50ohm

External frequency: 330MHz

External width: 1.3ns

External transition time: 800ps

Hysteresis: Low

Sync A Level Accuracy

Amplitude [V]	High Level Acc. [mV]	Low Level Acc. [mV]	Min Limit [mV]	Max Limit [mV]	Level Type	High Level [V]	Low Level [V]	Status
0.950	-47	-63	-150	150	ECL	-0.897	-1.863	o.k.
2.500	47	10	-150	200	TTL	2.547	0.010	o.k.
4.000	13	-38	-200	200 ±2V		2.013	-2.038	o.k.

Parameters

Frequency: 10MHz

Sync A Transition Times

Amplitude [V]	Risetime [ns]	Falltime [ns]	Min Limit [ns]	Max Limit [ns]	Level Type	Status
0.950	0.748	0.810	0.600	0.900	ECL	o.k.
2.500	0.784	0.709	0.600	0.900	TTL	o.k.
4.000	0.699	0.778	0.600	0.900 ±2V		o.k.

Parameters

Frequency: 10MHz

Transition times: 800ps typ. (measured from 20% to 80%)

Sync B Level Accuracy

Amplitude [V]	High Level Acc. [mV]	Low Level Acc. [mV]	Min Limit [mV]	Max Limit [mV]	Level Type	High Level [V]	Low Level [V]	Status
0.950	-77	-136	-150	150	ECL	-0.927	-1.936	o.k.
2.500	158	10	-150	200	TTL	2.658	0.010	o.k.
4.000	101	-126	-200	200 ±2V		2.101	-2.126	o.k.

Parameters

Frequency: 10MHz

Sync B Transition Times

Amplitude [V]	Risetime [ns]	Falltime [ns]	Min Limit [ns]	Max Limit [ns]	Level Type	Status
0.950	0.743	0.805	0.600	0.900	ECL	o.k.
2.500	0.790	0.701	0.600	0.900	TTL	o.k.
4.000	0.700	0.747	0.600	0.900 ±2V		o.k.

Parameters

Frequency: 10MHz

Transition times: 800ps typ. (measured from 20% to 80%)

Modulation In Amplitude (Channel 1)

External Frequency [MHz]	Meas. Amplitude [V]	Min Limit [V]	Max Limit [V]	Status
1.000	0.995	0.800	1.200	o.k.

Parameters

Measured at Sync B output

External amplitude = 2V (square)

Modulation input range: ±2.5V

Modulation input impedance: 50Ohm

Expected amplitude reading: 1V

Modulation In Transition Times (Channel 1)

External Frequency [MHz]	Risetime [ns]	Falltime [ns]	Min Limit [ns]	Max Limit [ns]	Status
1.000	34.083	33.936	31.000	36.000	o.k.

Parameters

SyncB output level: TTL

Measured at Sync B output

External amplitude = 2V (square)

Modulation input range: ±2.5V

Modulation input impedance: 50Ohm

Expected transition times reading: 33.5ns

Modulation In Amplitude (Channel 2)

External Frequency [MHz]	Meas. Amplitude [V]	Min Limit [V]	Max Limit [V]	Status
1.000	1.012	0.800	1.200	o.k.

Parameters

Measured at Sync B output
 External amplitude = 2V (square)
 Modulation input range: $\pm 2.5V$
 Modulation input impedance: 50Ohm
 Expected amplitude reading: 1V

Modulation In Transition Times (Channel 2)

External Frequency [MHz]	Risetime [ns]	Falltime [ns]	Min Limit [ns]	Max Limit [ns]	Status
1.000	34.293	33.868	31.000	36.000	o.k.

Parameters

SyncB output level: TTL
 Measured at Sync B output
 External amplitude = 2V (square)
 Modulation input range: $\pm 2.5V$
 Modulation input impedance: 50Ohm
 Expected transition times reading: 33.5ns

SSB Phase Noise (Channel 1. Out)

Frequency [MHz]	SSB Phase Noise [dBc/Hz]	Max Limit [dBc/Hz]	Status
1.0	-118.6	-115.0	o.k.
10.0	-120.0	-115.0	o.k.
100.0	-117.0	-110.0	o.k.
500.0	-105.3	-95.0	o.k.

Parameters

Specification:
 1 MHz: -115 dBc/Hz (typ.)
 10 MHz: -115 dBc/Hz (typ.)
 100 MHz: -110 dBc/Hz (typ.)
 500 MHz: -100 dBc/Hz (typ.)
 Measured at 10000Hz offset
 Output shape: Sinus
 Amplitude: 2.5V
 Offset: 1.25V

Non Harmonic Distortion (Channel 1. Out)

Carrier Freq. [MHz]	Spurious Power (left) [dBc]	Spurious Power (middle) [dBc]	Spurious Power (right) [dBc]	Max Limit [dBc]	Status
1.000	-60.5	-71.1	-60.5	-53.000	o.k.
24.000	-59.2	-71.3	-61.5	-53.000	o.k.
100.000	-55.5	-72.2	-65.2	-50.000	o.k.
300.000	-48.9	-70.1	-70.9	-50.000	o.k.
500.000	-45.2	-72.8	-81.3	-45.000	o.k.

Parameters

Specification:
 1 μ Hz to 1 MHz: -50 dBc (typ.)
 1 MHz to 10 MHz: -55 dBc (typ.)
 10 MHz to 280 MHz: -50 dBc (typ.)
 280 MHz to 330 MHz: -45 dBc (typ.)
 330 MHz to 500 MHz: -43 dBc (typ.)
 Amplitude: 2.5V
 Offset: 1.25V
 Spurious 'left' is measured at 625MHz - carrier frequency
 Spurious 'middle' is measured at 625MHz
 Spurious 'right' is measured at 625MHz + carrier frequency

SSB Phase Noise (Channel 2. Out)

Frequency [MHz]	SSB Phase Noise [dBc/Hz]	Max Limit [dBc/Hz]	Status
1.0	-119.0	-115.0	o.k.
10.0	-119.1	-115.0	o.k.
100.0	-117.4	-110.0	o.k.
500.0	-105.7	-95.0	o.k.

Parameters

Specification:

1 MHz: -115 dBc/Hz (typ.)
10 MHz: -115 dBc/Hz (typ.)
100 MHz: -110 dBc/Hz (typ.)
500 MHz: -100 dBc/Hz (typ.)

Measured at 10000Hz offset

Output shape: Sinus

Amplitude: 2.5V

Offset: 1.25V

Non Harmonic Distortion (Channel 2. Out)

Carrier Freq. [MHz]	Spurious Power (left) [dBc]	Spurious Power (middle) [dBc]	Spurious Power (right) [dBc]	Max Limit [dBc]	Status
1.000	-60.3	-70.1	-60.3	-53.000	o.k.
24.000	-59.3	-70.1	-61.0	-53.000	o.k.
100.000	-56.2	-70.1	-63.6	-50.000	o.k.
300.000	-49.3	-69.1	-69.0	-50.000	o.k.
500.000	-45.2	-66.3	-83.6	-45.000	o.k.

Parameters

Specification:

1 μ Hz to 1 MHz: -50 dBc (typ.)
1 MHz to 10 MHz: -55 dBc (typ.)
10 MHz to 280 MHz: -50 dBc (typ.)
280 MHz to 330 MHz: -45 dBc (typ.)
330 MHz to 500 MHz: -43 dBc (typ.)

Amplitude: 2.5V

Offset: 1.25V

Spurious 'left' is measured at 625MHz - carrier frequency

Spurious 'middle' is measured at 625MHz

Spurious 'right' is measured at 625MHz + carrier frequency

Overshoot (Channel 1. Out)

Amplitude [V]	Rising Edge Overshoot [%]	Falling Edge Overshoot [%]	Max Limit [%]	Status
1.000	1.5	1.6	6.0	o.k.
2.000	1.7	1.5	6.0	o.k.
3.000	2.0	1.0	6.0	o.k.
4.000	2.0	0.8	6.0	o.k.
5.000	1.1	0.6	6.0	o.k.

Parameters

Overshoot Specification: 4% (typ.)

Frequency: 10MHz

Offset: 0V

Overshoot (Channel 1. notOut)

Amplitude [V]	Rising Edge Overshoot [%]	Falling Edge Overshoot [%]	Max Limit [%]	Status
1.000	2.5	1.5	6.0	o.k.
2.000	3.1	1.5	6.0	o.k.
3.000	3.4	1.0	6.0	o.k.
4.000	3.3	0.9	6.0	o.k.
5.000	2.3	0.6	6.0	o.k.

Parameters

Overshoot Specification: 4% (typ.)

Frequency: 10MHz

Offset: 0V

Jitter (Main Out vs. Sync A. Channel 1)

Frequency [MHz]	Rising edge rms-Jitter [ps]	Falling edge rms-Jitter [ps]	Max Limit [ps]	Status
10.000	4	3	8	o.k.
330.000	4	4	8	o.k.

Parameters

Jitter Specification: 8 ps rms (typ.)

Jitter (Sync A vs. Sync A)

Frequency [MHz]	Rising edge rms-Jitter [ps]	Falling edge rms-Jitter [ps]	Max Limit [ps]	Status
10.000	4	3	9	o.k.
330.000	3	3	9	o.k.

Parameters

Jitter Specification: 9 ps rms (typ.)

Jitter (Sync B vs. Sync A)

Frequency [MHz]	Rising edge rms-Jitter [ps]	Falling edge rms-Jitter [ps]	Max Limit [ps]	Status
10.000	5	6	9	o.k.
330.000	5	6	9	o.k.

Parameters

Jitter Specification: 9 ps rms (typ.)

Overshoot (Channel 2. Out)

Amplitude [V]	Rising Edge Overshoot [%]	Falling Edge Overshoot [%]	Max Limit [%]	Status
1.000	1.3	1.3	6.0	o.k.
2.000	1.7	1.1	6.0	o.k.
3.000	2.1	0.5	6.0	o.k.
4.000	2.0	0.6	6.0	o.k.
5.000	1.4	0.4	6.0	o.k.

Parameters

Overshoot Specification: 4% (typ.)

Frequency: 10MHz

Offset: 0V

Overshoot (Channel 2. notOut)

Amplitude [V]	Rising Edge Overshoot [%]	Falling Edge Overshoot [%]	Max Limit [%]	Status
1.000	1.9	2.3	6.0	o.k.
2.000	2.6	2.0	6.0	o.k.
3.000	3.0	1.7	6.0	o.k.
4.000	2.9	1.2	6.0	o.k.
5.000	1.9	1.2	6.0	o.k.

Parameters

Overshoot Specification: 4% (typ.)

Frequency: 10MHz

Offset: 0V

Jitter (Main Out vs. Sync A. Channel 2)

Frequency [MHz]	Rising edge rms-Jitter [ps]	Falling edge rms-Jitter [ps]	Max Limit [ps]	Status
10.000	4	3	8	o.k.
330.000	5	4	8	o.k.

Parameters

Jitter Specification: 8 ps rms (typ.)

