

aptX IOP Sink Test Report



Date :	1/6/2022	Device type	Sink
Product Name :	KHADAS, Tea	Firmware version :	QCC5125, ADK6.4

Summary :	Device approved. Please note, the product has latency exceed 43ms, after internal discussing we give this case with special approval to claim to support aptX low latency. Please keep improving its latency in the next generation product. Thanks.
-----------	---

Supported features	aptX HD	Yes	TWS	No	IOP result
	aptX Classic	Yes	TWS Plus	No	
	aptX Low latency	Yes V2	Share Me	No	
	SCMS-T	Yes	Multipoint	No	
	Back Channel	No	aptX Voice	No	
Pass					

Connected with :	Name	Test Result	Comment
	8670 aptX LL USB Source	Pass	50ms> latency > 43ms, with special approval
	8675 aptX HD USB Source	Pass	
	QRD8350	Pass	
	QRD8150	Pass	

For additional information or to submit technical questions, go to: <https://createpoint.qti.qualcomm.com>
Confidential and Proprietary – Qualcomm Technologies International, Ltd.

NO PUBLIC DISCLOSURE PERMITTED: Please report postings of this document on public servers or websites to: DocCtrlAgent@qualcomm.com.

Restricted Distribution: Not to be distributed to anyone who is not an employee of either Qualcomm Technologies International, Ltd. or its affiliated companies without the express approval of Qualcomm Configuration Management.

Not to be used, copied, reproduced, or modified in whole or in part, nor its contents revealed in any manner to others without the express written permission of Qualcomm Technologies International, Ltd.

All Qualcomm products mentioned herein are products of Qualcomm Technologies, Inc. and/or its subsidiaries.

Qualcomm is a trademark of Qualcomm Incorporated, registered in the United States and other countries. aptX is a trademark of Qualcomm Technologies International, Ltd., registered in the United States and other countries. Other product and brand names may be trademarks or registered trademarks of their respective owners.

This technical data may be subject to U.S. and international export, re-export, or transfer (“export”) laws. Diversion contrary to U.S. and international law is strictly prohibited.

Qualcomm Technologies International, Ltd. (formerly known as Cambridge Silicon Radio Limited) is a company registered in England and Wales with a registered office at: Churchill House, Cambridge Business Park, Cowley Road, Cambridge, CB4 0WZ, United Kingdom. Registered Number: 3665875 | VAT number: GB787433096.

Source Firmware version :		Source Device type :		Source specific features :
		8670 aptX LL USB Source		aptX-LL with SCMS-T

Category	Test Name		Test description	Expected behavior	Result	Comments
Connection Tests	Pairing test	Mandatory	Pair devices, start streaming	Pairing and connection successful, music plays	Pass	
	Source originated clean disconnection	If supported by the source	Disconnect the device using the source's GUI, reconnect the device using the source's GUI, start streaming	Reconnection successful on the first attempt, music can be resumed	N/A	
	Sink Originated clean disconnection	If supported by the sink	Power cycle the sink device, reconnect the device using the sink's buttons, start streaming	If the sink is capable of initiating a connection, reconnection successful on the first attempt, music can be resumed	Pass	
	Source originated dirty disconnection	If supported by the source	Remove the source's battery (or power cable), wait for the sink to time-out the connection, reconnect the source, start streaming	Reconnection successful on the first attempt, music can be resumed	Pass	
	Sink originated dirty disconnection	If supported by the sink	Remove the sink's battery (or power cable), wait for the source to time-out the connection, reconnect the sink start streaming	If the sink is capable of initiating a connection, reconnection successful on the first attempt, music can be resumed	N/A	
	Out of range test	Mandatory	While streaming, walk out of range with the source or sink, wait for disconnection, walk back in range, reconnect and start streaming	Reconnection successful, music plays ok	Pass	
Performance test	Glitch test	Mandatory	With both devices one meter away from each other, play the 100 Hz tone signal	No audible audio glitch observed over 3 minutes	Pass	
	Source initiated latency test	Mandatory if both devices support aptX Low Latency	Initiate the connection from the source and measure latency over 3 minutes in good radio conditions	The latency must be <50 ms, <40±3 ms if the device uses the aptX Low Latency logo	Pass	1. latency: 43.0 ~43.8ms 2. with special approval to get a PASS result
	Sink initiated latency test	Mandatory if both devices support aptX Low Latency	Initiate the connection from the sink and measure latency over 3 minutes in good radio conditions	The latency must be <50 ms, <40±3 ms if the device uses the aptX Low Latency logo	Pass	43ms
	Latency recovery test	Mandatory if both devices support aptX Low Latency	Move the devices away from each other until audio starts to break up while connection is still up, then put the devices beside each other	Latency may increase while radio conditions are degrading, but latency must recover to <50 ms when radio conditions improve, <40±3 ms if the device uses the aptX Low Latency logo	Pass	1. latency: 43.6ms 2. 2. with special approval to get a PASS result
Feature related tests	True Wireless test	Mandatory if supported by the sink	Set the sink device in True Wireless mode, connect to the source and start streaming	Music plays on both receivers	N/A	
	True Wireless Plus test	Mandatory if Supported by the source and sink	Set the sink device in TWS plus mode, connect to the source and start streaming	Confirm aptX codec is selected; see two sink devices are connected to the source. Both sinks are playing the same stream and no audible audio glitch observed over 3 minutes	N/A	
	Share Me	Mandatory if supported by the sink	Set the sink device in Share Me mode, connect to the source and start streaming	Music plays on both receivers	N/A	
	Multipoint test	Mandatory if supported by the sink	Set the sink device in multipoint mode, connect to two different sources, start streaming from source 1, then from source 2	Both sources can play to the device without reconnection needed (only one source playing at a time)	N/A	
	Back channel	Mandatory if supported by the source and sink	Talk into the sink microphone	The voice can be heard in the source output	N/A	

Source Firmware version :		Source Device type :		Source specific features :
		8675 aptX HD USB Source		aptX HD with SCMS-T

Category	Test Name		Test description	Expected behavior	Result	Comments
Connection Tests	Pairing test	Mandatory	Pair devices, start streaming	Pairing and connection successful, music plays	Pass	
	Source originated clean disconnection	If supported by the source	Disconnect the device using the source's GUI, reconnect the device using the source's GUI, start streaming	Reconnection successful on the first attempt, music can be resumed	N/A	
	Sink Originated clean disconnection	If supported by the sink	Power cycle the sink device, reconnect the device using the sink's buttons, start streaming	If the sink is capable of initiating a connection, reconnection successful on the first attempt, music can be resumed	Pass	
	Source originated dirty disconnection	If supported by the source	Remove the source's battery (or power cable), wait for the sink to time-out the connection, reconnect the source, start streaming	Reconnection successful on the first attempt, music can be resumed	Pass	
	Sink originated dirty disconnection	If supported by the sink	Remove the sink's battery (or power cable), wait for the source to time-out the connection, reconnect the sink start streaming	If the sink is capable of initiating a connection, reconnection successful on the first attempt, music can be resumed	N/A	
	Out of range test	Mandatory	While streaming, walk out of range with the source or sink, wait for disconnection, walk back in range, reconnect and start streaming	Reconnection successful, music plays ok	Pass	
Performance test	Glitch test	Mandatory	With both devices one meter away from each other, play the 100 Hz tone signal	No audible audio glitch observed over 3 minutes	Pass	
	Source initiated latency test	Mandatory if both devices support aptX Low Latency	Initiate the connection from the source and measure latency over 3 minutes in good radio conditions	The latency must be <50 ms, <40±3 ms if the device uses the aptX Low Latency logo	N/A	
	Sink initiated latency test	Mandatory if both devices support aptX Low Latency	Initiate the connection from the sink and measure latency over 3 minutes in good radio conditions	The latency must be <50 ms, <40±3 ms if the device uses the aptX Low Latency logo	N/A	
	Latency recovery test	Mandatory if both devices support aptX Low Latency	Move the devices away from each other until audio starts to break up while connection is still up, then put the devices beside each other	Latency may increase while radio conditions are degrading, but latency must recover to <50 ms when radio conditions improve, <40±3 ms if the device uses the aptX Low Latency logo	N/A	
Feature related tests	True Wireless test	Mandatory if supported by the sink	Set the sink device in True Wireless mode, connect to the source and start streaming	Music plays on both receivers	N/A	
	True Wireless Plus test	Mandatory if Supported by the source and sink	Set the sink device in TWS plus mode, connect to the source and start streaming	Confirm aptX codec is selected; see two sink devices are connected to the source. Both sinks are playing the same stream and no audible audio glitch observed over 3 minutes	N/A	
	Share Me	Mandatory if supported by the sink	Set the sink device in Share Me mode, connect to the source and start streaming	Music plays on both receivers	N/A	
	Multipoint test	Mandatory if supported by the sink	Set the sink device in multipoint mode, connect to two different sources, start streaming from source 1, then from source 2	Both sources can play to the device without reconnection needed (only one source playing at a time)	N/A	
	Back channel	Mandatory if supported by the source and sink	Talk into the sink microphone	The voice can be heard in the source output	N/A	

Source Firmware version :		Source Device type :		Source specific features :
Android 11		QRD8350		aptX adaptive with SCMS-T

Category	Test Name		Test description	Expected behavior	Result	Comments
Connection Tests	Pairing test	Mandatory	Pair devices, start streaming	Pairing and connection successful, music plays	Pass	
	Source originated clean disconnection	If supported by the source	Disconnect the device using the source's GUI, reconnect the device using the source's GUI, start streaming	Reconnection successful on the first attempt, music can be resumed	Pass	
	Sink Originated clean disconnection	If supported by the sink	Power cycle the sink device, reconnect the device using the sink's buttons, start streaming	If the sink is capable of initiating a connection, reconnection successful on the first attempt, music can be resumed	Pass	
	Source originated dirty disconnection	If supported by the source	Remove the source's battery (or power cable), wait for the sink to time-out the connection, reconnect the source, start streaming	Reconnection successful on the first attempt, music can be resumed	N/A	
	Sink originated dirty disconnection	If supported by the sink	Remove the sink's battery (or power cable), wait for the source to time-out the connection, reconnect the sink start streaming	If the sink is capable of initiating a connection, reconnection successful on the first attempt, music can be resumed	N/A	
	Out of range test	Mandatory	While streaming, walk out of range with the source or sink, wait for disconnection, walk back in range, reconnect and start streaming	Reconnection successful, music plays ok	Pass	
Performance test	Glitch test	Mandatory	With both devices one meter away from each other, play the 100 Hz tone signal	No audible audio glitch observed over 3 minutes	Pass	
	Source initiated latency test	Mandatory if both devices support aptX Low Latency	Initiate the connection from the source and measure latency over 3 minutes in good radio conditions	The latency must be <50 ms, <40±3 ms if the device uses the aptX Low Latency logo	N/A	
	Sink initiated latency test	Mandatory if both devices support aptX Low Latency	Initiate the connection from the sink and measure latency over 3 minutes in good radio conditions	The latency must be <50 ms, <40±3 ms if the device uses the aptX Low Latency logo	N/A	
	Latency recovery test	Mandatory if both devices support aptX Low Latency	Move the devices away from each other until audio starts to break up while connection is still up, then put the devices beside each other	Latency may increase while radio conditions are degrading, but latency must recover to <50 ms when radio conditions improve, <40±3 ms if the device uses the aptX Low Latency logo	N/A	
Feature related tests	True Wireless test	Mandatory if supported by the sink	Set the sink device in True Wireless mode, connect to the source and start streaming	Music plays on both receivers	N/A	
	True Wireless Plus test	Mandatory if Supported by the source and sink	Set the sink device in TWS plus mode, connect to the source and start streaming	Confirm aptX codec is selected; see two sink devices are connected to the source. Both sinks are playing the same stream and no audible audio glitch observed over 3 minutes	N/A	
	Share Me	Mandatory if supported by the sink	Set the sink device in Share Me mode, connect to the source and start streaming	Music plays on both receivers	N/A	
	Multipoint test	Mandatory if supported by the sink	Set the sink device in multipoint mode, connect to two different sources, start streaming from source 1, then from source 2	Both sources can play to the device without reconnection needed (only one source playing at a time)	N/A	
	Back channel	Mandatory if supported by the source and sink	Talk into the sink microphone	The voice can be heard in the source output	N/A	

Source Firmware version :		Source Device type :		Source specific features :
Android 9		QRD8150		aptX adaptive with SCMS-T

Category	Test Name		Test description	Expected behavior	Result	Comments
Connection Tests	Pairing test	Mandatory	Pair devices, start streaming	Pairing and connection successful, music plays	Pass	
	Source originated clean disconnection	If supported by the source	Disconnect the device using the source's GUI, reconnect the device using the source's GUI, start streaming	Reconnection successful on the first attempt, music can be resumed	Pass	
	Sink Originated clean disconnection	If supported by the sink	Power cycle the sink device, reconnect the device using the sink's buttons, start streaming	If the sink is capable of initiating a connection, reconnection successful on the first attempt, music can be resumed	Pass	
	Source originated dirty disconnection	If supported by the source	Remove the source's battery (or power cable), wait for the sink to time-out the connection, reconnect the source, start streaming	Reconnection successful on the first attempt, music can be resumed	N/A	
	Sink originated dirty disconnection	If supported by the sink	Remove the sink's battery (or power cable), wait for the source to time-out the connection, reconnect the sink start streaming	If the sink is capable of initiating a connection, reconnection successful on the first attempt, music can be resumed	N/A	
	Out of range test	Mandatory	While streaming, walk out of range with the source or sink, wait for disconnection, walk back in range, reconnect and start streaming	Reconnection successful, music plays ok	Pass	
Performance test	Glitch test	Mandatory	With both devices one meter away from each other, play the 100 Hz tone signal	No audible audio glitch observed over 3 minutes	Pass	
	Source initiated latency test	Mandatory if both devices support aptX Low Latency	Initiate the connection from the source and measure latency over 3 minutes in good radio conditions	The latency must be <50 ms, <40±3 ms if the device uses the aptX Low Latency logo	N/A	
	Sink initiated latency test	Mandatory if both devices support aptX Low Latency	Initiate the connection from the sink and measure latency over 3 minutes in good radio conditions	The latency must be <50 ms, <40±3 ms if the device uses the aptX Low Latency logo	N/A	
	Latency recovery test	Mandatory if both devices support aptX Low Latency	Move the devices away from each other until audio starts to break up while connection is still up, then put the devices beside each other	Latency may increase while radio conditions are degrading, but latency must recover to <50 ms when radio conditions improve, <40±3 ms if the device uses the aptX Low Latency logo	N/A	
Feature related tests	True Wireless test	Mandatory if supported by the sink	Set the sink device in True Wireless mode, connect to the source and start streaming	Music plays on both receivers	N/A	
	True Wireless Plus test	Mandatory if Supported by the source and sink	Set the sink device in TWS plus mode, connect to the source and start streaming	Confirm aptX codec is selected; see two sink devices are connected to the source. Both sinks are playing the same stream and no audible audio glitch observed over 3 minutes	N/A	
	Share Me	Mandatory if supported by the sink	Set the sink device in Share Me mode, connect to the source and start streaming	Music plays on both receivers	N/A	
	Multipoint test	Mandatory if supported by the sink	Set the sink device in multipoint mode, connect to two different sources, start streaming from source 1, then from source 2	Both sources can play to the device without reconnection needed (only one source playing at a time)	N/A	
	Back channel	Mandatory if supported by the source and sink	Talk into the sink microphone	The voice can be heard in the source output	N/A	