



### Model: DAXA-O1



DAXA-O1 is a 3x3 802.11ac/n/a wifi module in standard PCIe mini card form factor designed to deliver up to 1.3Gbps wireless data rates and target next-generation dual-band, dual-concurrent (DBDC) home and enterprise wireless access points for a variety of high-reliable and bandwidth-intensive video-over-wireless applications.

Unique Front End Module design allows co-located 5GHz RF standing up to -3dBm power injection from 2.4GHz to provide non-degraded Rx sensitivity on dual-band, dual-concurrent (DBDC) implementation. A new, highly efficient architecture reduces processing requirements and power consumption, while nearly tripling wireless performance of 802.11n 3x3, to enable broad adoption of home and enterprise wireless networking.

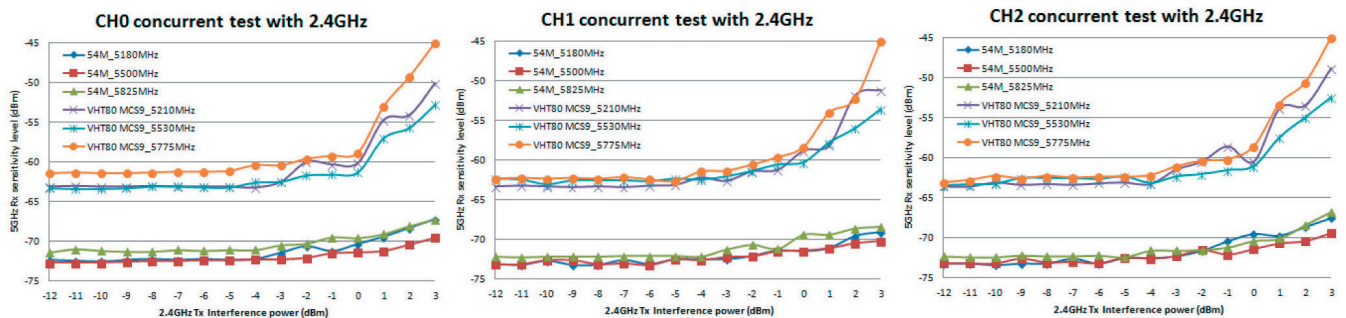
#### Key Features:

- Unique Front End Module design allows co-located 5GHz RF standing up to -3dBm power injection from 2.4GHz to provide non-degraded Rx sensitivity on dual-band, dual-concurrent (DBDC) implementation.
- Supports 20/40/80MHz channel and 256 QAM to maximize bandwidth efficiency.
- Single band 802.11ac/n/a supports 3Tx/3Rx to enables antenna port data rate up to 1.3Gbps.
- Standard 29.85(W) x 50.80(L) mm PCIe full-size mini card with mounting holes is ideal for embedding into ultra-compact devices or embed additional mini cards with complementary technologies.
- Three U.FL antenna connectors enable design flexibility to utilize different transmit/receive chains to communicate with different users.
- REACH SVHC 73 (2011/12/19) and RoHS compliance ensure a high level protection of human health and the environment from risks that can be posed by chemicals.

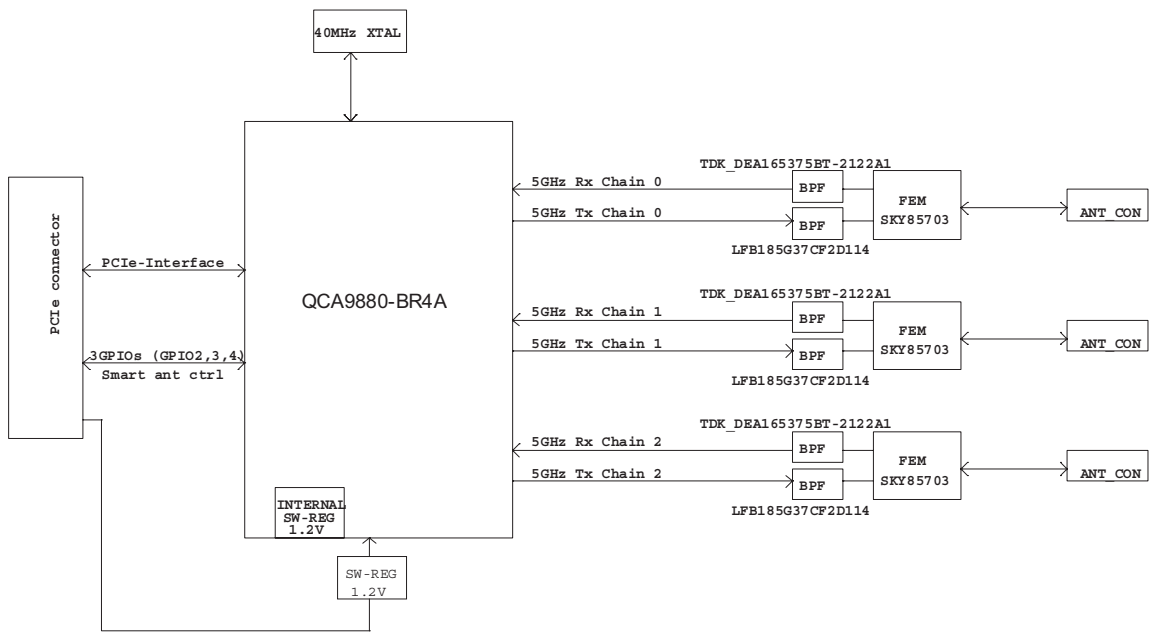
#### Rx Sensitivity Co-existence with 2.4GHz Interference Tx Power:

Unique Front End Module design allows co-located 5GHz RF standing up to -3dBm power injection from 2.4GHz to provide non-degraded Rx sensitivity on dual-band, dual-concurrent (DBDC) implementation.

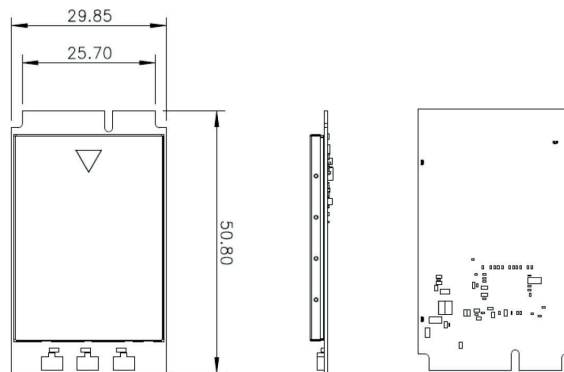
sweep 2.4GHz conductive power v.s. 5GHz Rx PER@ concurrent mode



### Block Diagram



### Outline



<b>Pin Assignment:</b>			
<b>Pin No.</b>	<b>Name</b>	<b>Direction</b>	<b>Description</b>
4,9,15,18,21,26,27,29,3 4,35,40,50	GND	---	Ground
43	RESERVED	---	Ground
37	RESERVED	---	No connection
39,41	RESERVED	---	3.3V
49,51	RESERVED	I	Reserved for External Power Supply for FEM
3	RESERVED	I/O	No connection
47	RESERVED	I/O	No connection
45	RESERVED	I/O	No connection
5	RESERVED	I/O	No connection
8,10,12,14,16,17,19,	NC	---	No connection
33	PETp0	Analog input signal	Differential receive
31	PETn0	Analog input signal	Differential receive
25	PERP0	Analog output signal	Differential transmit
23	PERN0	Analog output signal	Differential transmit
13	REFCLK+	Analog input signal	Differential reference clock (100MHz)
11	REFCLK-	Analog input signal	Differential reference clock (100MHz)
20	WLAN_DISABLE_L	I/O	Reserved for QCA GPIO0
7	CLKREQ_L	A digital output signal with open drain	Reference clock request, open drain
22	PERST_L	Input signals with weak internal pulldown, to prevent signals from floating	PCI Express reset with weak pull down
1	WAKE_L	A digital output signal with open drain	Reserved for 3.3V or WAKE2_L (Request to service a function-initiated wake event, open drain).
32	SMB_DATA	---	No connection
30	SMB_CLK	---	No connection
46	LED_WPAN_L	O	No connection
44	LED_WLAN_L	O	Reserved for QCA GPIO1
42	LED_WWAN_L	---	No connection.
38	USB_D+	I/O	USB_D+
36	USB_D-	I/O	USB_D-
6,28,48	1.5V	---	No connection
2,52	3.3V	---	3.3V
24	3.3VAUX	---	Reserved for 3.3V

<b>Specifications:</b>																									
<b>Main Chipset</b>	QCA9880																								
<b>Tx/Rx</b>	3T3R																								
<b>Standard Conformance</b>	802.11ac, 802.11na, and 802.11a																								
<b>Frequency Range</b>	<ul style="list-style-type: none"> <li>▪ USA: 5.15 – 5.35GHz, 5.47 – 5.725GHz, 5.725 – 5.825GHz</li> <li>▪ Europe: 5.15 – 5.35GHz, 5.47– 5.725GHz</li> <li>▪ Japan: 5.15– 5.35GHz, 5.47 – 5.725GHz</li> <li>▪ China: 5.725 – 5.85GHz</li> </ul>																								
<b>Interface</b>	PCI Express ® mini-card rev. 1.2																								
<b>Operating Channels</b>	<ul style="list-style-type: none"> <li>▪ USA/Canada: 12 non-overlapping channels</li> <li>▪ Major Europe Countries: 19 non-overlapping channels</li> <li>▪ Japan: 19 non-overlapping channels</li> <li>▪ China: 5 non-overlapping channels</li> </ul>																								
<b>Operation Voltage</b>	3.3V ± 5%																								
<b>Power Consumption (typical level, with ± 50mA tolerance)</b>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="text-align: right; vertical-align: bottom;">Avg./Max. (mA)</th> </tr> </thead> <tbody> <tr> <td>11a continue Tx @ 6M_18dBm</td> <td style="text-align: right;">1120</td> </tr> <tr> <td>11na continue Tx @ HT20 MCS16 (MIMO)_18dBm</td> <td style="text-align: right;">1070</td> </tr> <tr> <td>11na continue Tx @ HT40 MCS16 (MIMO)_18dBm</td> <td style="text-align: right;">980</td> </tr> <tr> <td>11na continue Tx @ HT20 MCS23 (MIMO)_14dBm</td> <td style="text-align: right;">800</td> </tr> <tr> <td>11na continue Tx @ HT40 MCS23 (MIMO)_14dBm</td> <td style="text-align: right;">740</td> </tr> <tr> <td>11ac continue Tx @ VHT40 MCS0_ NSS3_18dBm</td> <td style="text-align: right;">1070</td> </tr> <tr> <td>11ac continue Tx @ VHT80 MCS0_ NSS3_18dBm</td> <td style="text-align: right;">1070</td> </tr> <tr> <td>11ac continue Tx @ VHT40 MCS9_ NSS3_14dBm</td> <td style="text-align: right;">750</td> </tr> <tr> <td>11ac continue Tx @ VHT80 MCS9_ NSS3_14dBm</td> <td style="text-align: right;">750</td> </tr> <tr> <td>Idle</td> <td style="text-align: right;">80</td> </tr> <tr> <td>Standby</td> <td style="text-align: right;">260</td> </tr> </tbody> </table>		Avg./Max. (mA)	11a continue Tx @ 6M_18dBm	1120	11na continue Tx @ HT20 MCS16 (MIMO)_18dBm	1070	11na continue Tx @ HT40 MCS16 (MIMO)_18dBm	980	11na continue Tx @ HT20 MCS23 (MIMO)_14dBm	800	11na continue Tx @ HT40 MCS23 (MIMO)_14dBm	740	11ac continue Tx @ VHT40 MCS0_ NSS3_18dBm	1070	11ac continue Tx @ VHT80 MCS0_ NSS3_18dBm	1070	11ac continue Tx @ VHT40 MCS9_ NSS3_14dBm	750	11ac continue Tx @ VHT80 MCS9_ NSS3_14dBm	750	Idle	80	Standby	260
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**Specifications:****Average Tx Power (typical power level per chain, with  $\pm 2$ dB tolerance)****IEEE 802.11 a/ac**

		CH36 ~ 48	CH52 ~ 64	CH100 ~ 165
20MHz BW	6Mbps	18	18	18
	9Mbps	18	18	18
	12Mbps	18	18	18
	18Mbps	18	18	18
	24Mbps	18	18	18
	36Mbps	18	18	18
	48Mbps	18	18	18
	54Mbps	16	16	16
	HT20MCS0	18	18	18
	HT20MCS1	18	18	18
	HT20MCS2	18	18	18
	HT20MCS3	18	18	18
	HT20MCS4	18	18	18
	HT20MCS5	18	18	18
	HT20MCS6	18	18	18
	HT20MCS7	16	16	16
	VHT20_MCS8	15	15	15
	40MHz BW	HT40MCS0	18	18
HT40MCS1		18	18	18
HT40MCS2		18	18	18
HT40MCS3		18	18	18
HT40MCS4		18	18	18
HT40MCS5		18	18	18
HT40MCS6		18	18	18
HT40MCS7		16	16	16
VHT40_MCS8		15	15	15
VHT40_MCS9		14	14	14
80MHz BW	VHT80_MCS0	18	18	18
	VHT80_MCS1	18	18	18
	VHT80_MCS2	18	18	18
	VHT80_MCS3	18	18	18
	VHT80_MCS4	18	18	18
	VHT80_MCS5	18	18	18
	VHT80_MCS6	18	18	18
	VHT80_MCS7	16	16	16
	VHT80_MCS8	15	15	15
	VHT80_MCS9	14	14	14

## Specifications:

Receiver Sensitivity (typical 3 chains combined sensitivity level with +/- 2dB tolerance)	IEEE 802.11 a/ac			
		CH36 ~ 48	CH52 ~ 64	CH100 ~ 165
	20MHz BW	6Mbps	-95	-95
	9Mbps	-94	-94	-94
	12Mbps	-93	-93	-93
	18Mbps	-90	-90	-90
	24Mbps	-88	-88	-88
	36Mbps	-85	-85	-85
	48Mbps	-78	-78	-78
	54Mbps	-76	-76	-76
	HT20MCS0	-94	-94	-94
	HT20MCS1	-92	-92	-92
	HT20MCS2	-90	-90	-90
	HT20MCS3	-86	-86	-86
	HT20MCS4	-83	-83	-83
	HT20MCS5	-78	-78	-78
	HT20MCS6	-77	-77	-77
	HT20MCS7	-76	-76	-76
	VHT20_MCS8	-72	-72	-72
40MHz BW	HT40MCS0	-92	-92	-92
	HT40MCS1	-91	-91	-91
	HT40MCS2	-90	-90	-90
	HT40MCS3	-85	-85	-85
	HT40MCS4	-82	-82	-82
	HT40MCS5	-78	-78	-78
	HT40MCS6	-77	-77	-77
	HT40MCS7	-76	-76	-76
	VHT40_MCS8	-71	-71	-71
	VHT40_MCS9	-70	-70	-70
80MHz BW	VHT80_MCS0	-90	-90	-90
	VHT80_MCS1	-89	-89	-89
	VHT80_MCS2	-87	-87	-87
	VHT80_MCS3	-82	-82	-82
	VHT80_MCS4	-79	-79	-79
	VHT80_MCS5	-75	-75	-75
	VHT80_MCS6	-74	-74	-74
	VHT80_MCS7	-72	-72	-72
	VHT80_MCS8	-68	-68	-68
	VHT80_MCS9	-67	-67	-67
<b>Dimension</b>	29.85(W) x 50.80(L) mm			
<b>Operation Temperature Range</b>	0°C ~ +60°C			
<b>Storage Temperature Range</b>	-20°C ~ +80°C			
<b>Operating Humidity</b>	15% ~ 95%, non-condensing			
<b>Storage Humidity</b>	max. 95%, non-condensing			
<b>Human Health &amp; Environment-Friendly Compliance</b>	REACH and RoHS			

**Specifications:**

<b>Antenna Connector</b>	three U.FL ultra-miniature coaxial antenna connectors
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**Ordering Information:**

<b>DAXA-O1</b>	802.11ac/n/a single band 3x3 PCIe mini card, QCA9880
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