

# QTM10028 5G-NR Millimeter-Wave Antenna Module

## Device Specification

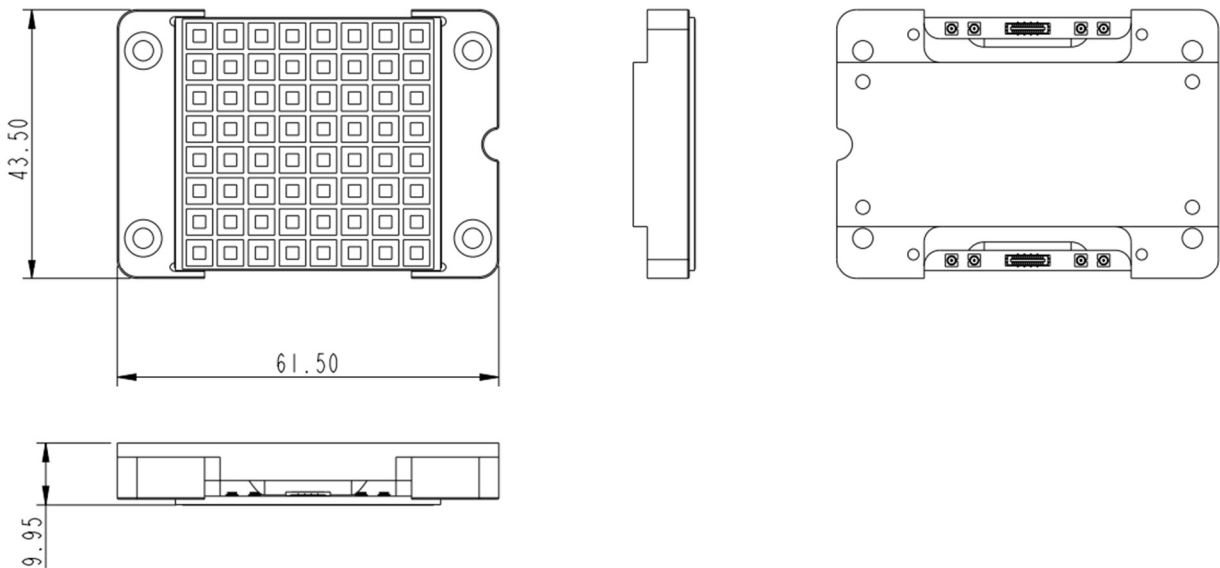
### 1 Device description

The QTM10028 module is the first Small Cells 5G-NR millimeter-wave antenna module from Qualcomm Technologies, Inc (QTI). It implements the 5G-NR standard for 28 GHz millimeter-wave (mmW).

### 2 Key features

- Coupled with FSM10055 baseband IC through the IF interface
- 3GPP Rel 15 5G-NR
- mmW TDD mode
- 64 QAM uplink/downlink
- Supports 28 GHz mmW band
- Includes 8 x 8 dual-pol antenna array, driven by eight mmW RFICs and eight PMICs
- 800 MHz Tx, 800 MHz Rx
- Overall module size: 61.50 mm x 43.50 mm x 10.38 mm

### 3 QTM10028 package drawing



### 4 QTM10028 features

Feature	QTM10028 capability

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Operating frequency	<ul style="list-style-type: none"> <li>■ 26.5 to 29.5 GHz (n257)</li> <li>■ 27.5 to 28.3 GHz (n261)</li> </ul>
IF range	<ul style="list-style-type: none"> <li>■ 8.09 to 9.26 GHz (n261)</li> <li>■ 8.0 to 9.45 GHz (n257)</li> </ul>
Duplexing	<ul style="list-style-type: none"> <li>■ TDD</li> </ul>
Max Gain	<ul style="list-style-type: none"> <li>■ 22dBi</li> </ul>
Max BW	<ul style="list-style-type: none"> <li>■ 1200 MHz (OBW), 1200 MHz (IBW)</li> </ul>
RFIC interface	<ul style="list-style-type: none"> <li>■ coax</li> </ul>
Beamforming	<ul style="list-style-type: none"> <li>■ Independent for each layer. Amplitude and phase control of each element</li> </ul>
Digital interfaces	<ul style="list-style-type: none"> <li>■ RFFE control interface via the RFFE ports 1 and 3</li> <li>■ Power management IC (PMIC) enable input signal (QTM_PON)</li> </ul>
Power supplies	<ul style="list-style-type: none"> <li>■ VPH_PWR and power supplies</li> <li>■ Integrated PMIC provides all other RFIC supplies</li> </ul>
Packages	<ul style="list-style-type: none"> <li>■ 61.50 mm x 43.50 mm x 10.38 mm</li> </ul>

### 5 General specifications for QTM10028 antenna module

Parameter	Condition	Min	Typ	Max	Unit
1CC Total max EIRP (H+V layers)	64 QAM, 1CC	–	–	50	dBm
4CC Total max EIRP (H+V layers)	64 QAM, 4CC	–	–	48	dBm
Scan angle range	–	–	+/-60	–	deg
1CC Min EIRP over scan angles	64 QAM, 1CC	44	–	–	dBm
4CC Min EIRP over scan angles	64 QAM, 4CC	41.5	–	–	dBm
ACLR over scan angle	64 QAM, 1CC	–	–	-27.5	dBc
EVM	–	–	< 6	8	%

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Total radiated power	50 dBm EIRP	-	-	28	dBm
Cross-pol leakage	(0 deg Az/0 deg EI) beam	-	-	-30	dB
Noise figure at 0Az/0EI	Worst of H or V	-	-	5.5	dB
Noise figure over scan angle	Worst of H or V	-	-	8.5	dB
Rx gain drop over scan angle	Worst of H or V	-	-	5.5	dB

NOTE: Tj temperature range: -5°C to +105°C.

NOTE: Measured with test equipment generated IF and LO, TM1.1 and 3.1 waveforms.

NOTE: EIRP (H) < {EIRP(V) + 1 dBm}.

NOTE: RGI gain is adjusted to maximize EIRP of each layer at every frequency.