

QTM10028 5G-NR Millimeter-Wave Antenna Module

Device Specification

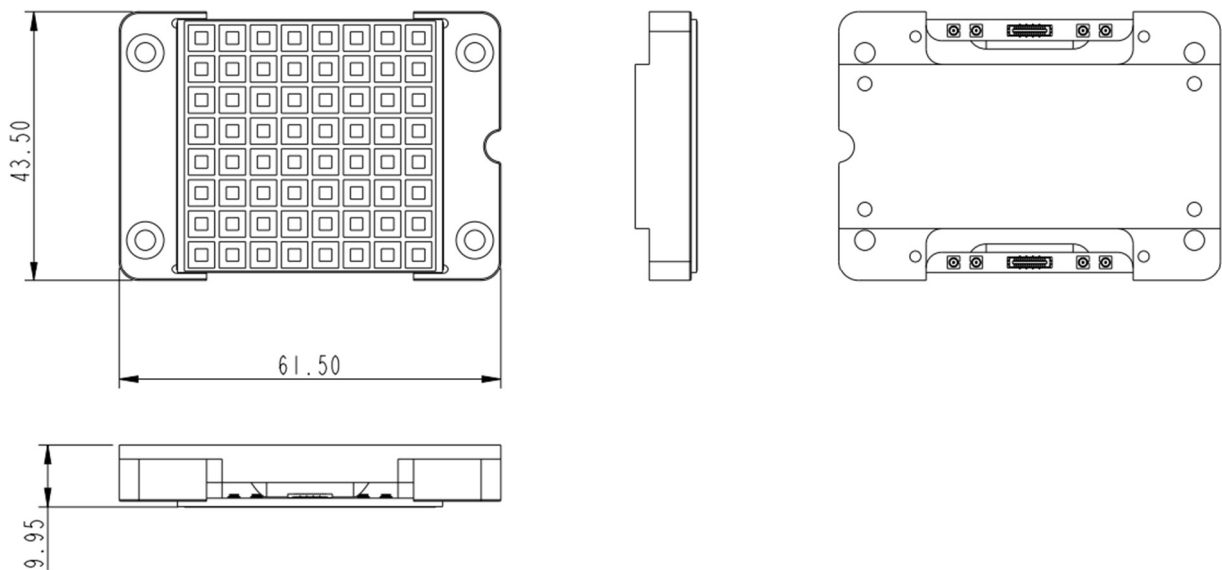
1 Device description

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	■ 26.5 to 29.5 GHz (n257) ■ 27.5 to 28.3 GHz (n261)
IF range	■ 8.09 to 9.26 GHz (n261) ■ 8.0 to 9.45 GHz (n257)
Duplexing	■ TDD
Max Gain	■ 22dBi
Max BW	■ 1200 MHz (OBW), 1200 MHz (IBW)
RFIC interface	■ coax
Beamforming	■ Independent for each layer. Amplitude and phase control of each element
Digital interfaces	■ RFFE control interface via the RFFE ports 1 and 3 ■ Power management IC (PMIC) enable input signal (QTM_PON)
Power supplies	■ VPH_PWR and power supplies ■ Integrated PMIC provides all other RFIC supplies
Packages	■ 61.50 mm x 43.50 mm x 10.38 mm

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 El) beam	—	—	-30	dB
Noise figure at 0Az/0El	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.