

Antenna Technical Datasheet BCM3101

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1. Objective

This document contains specification and performance summary of all antennas in BCM3101 device.

2. Antenna Specification

BRC3101 includes integrated antennas inside the device mechanics which are fabricated using LDS process on an antenna carrier.

3. Antenna Performance Summary

BCM3101 antenna performance was measured in drive unit mounting position as shown in figure 1.

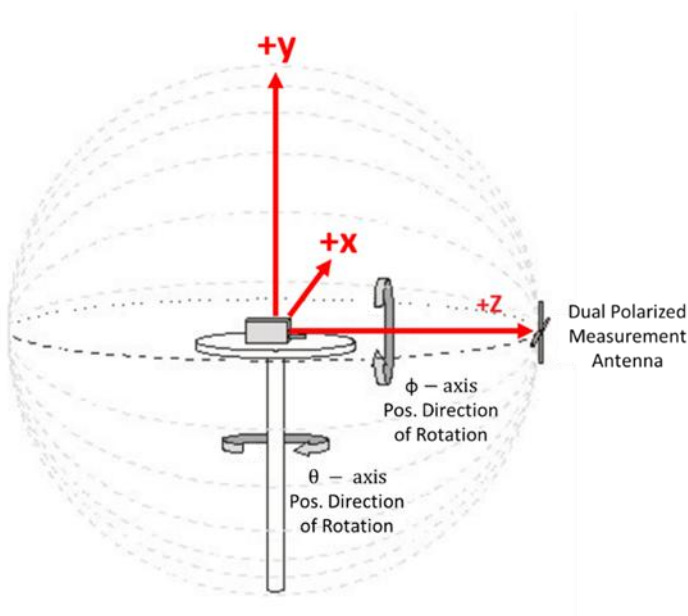


Figure 1. Antenna measurement system and coordination.

3.1. Summary of Total Radiated Efficiency and Peak Gain

February 16, 2026

Page 2 of 7

Band		Frequency (MHz)	Total Radiated Efficiency (dB)	Peak Gain (dBi)
BLE		2400	-5.63	0.93
		2442	-5.72	0.77
		2484	-6.29	0.42
GNSS		1559	-3.82	-0.59
		1575.4	-4.16	-0.98
		1610	-5.49	-1.85
LTE-M/NB-IoT Band1	Uplink	1920	-5.33	-0.51
		1950	-5.20	-0.41
		1980	-4.85	-0.49
	Downlink	2110	-5.04	1.35
		2140	-5.77	0.83
		2170	-6.74	-0.15
LTE-M/NB-IoT Band2	Uplink	1850	-6.07	-1.51
		1880	-5.82	-0.66
		1910	-5.43	-0.44
	Downlink	1930	-5.33	-0.75
		1960	-5.13	-0.52
		1990	-4.84	-0.39
LTE-M/NB-IoT Band3	Uplink	1710	-8.59	-4.09
		1747.5	-8.11	-3.58
		1785	-7.40	-3.57
	Downlink	1805	-6.53	-2.80
		1842.5	-6.06	-1.80
		1880	-5.85	-0.87
LTE-M/NB-IoT Band4	Uplink	1710	-8.59	-4.12
		1732.5	-7.99	-3.47
		1755	-8.21	-3.54
	Downlink	2110	-5.12	1.26
		2132.5	-5.65	0.87
		2155	-6.41	0.11
LTE-M/NB-IoT Band5	Uplink	824	-9.48	-5.42
		836.5	-9.96	-5.88
		849	-10.59	-6.65
	Downlink	869	-11.57	-7.26
		881.5	-11.97	-7.31
		894	-11.59	-7.73
LTE-M/NB-IoT Band8	Uplink	880	-10.77	-6.05
		897.5	-10.00	-6.28
		915	-8.37	-3.47
	Downlink	925	-7.84	-2.38

LTE-M/NB-IoT Band12	Uplink	942.5	-7.67	-1.01
		960	-7.60	-0.15
		699	-7.89	-4.92
	Downlink	707.5	-8.09	-5.27
		716	-7.94	-5.15
		729	-8.00	-5.29
LTE-M/NB-IoT Band13	Uplink	737.5	-8.19	-5.06
		746	-8.47	-5.08
		777	-9.73	-6.36
	Downlink	782	-9.98	-7.11
		787	-10.05	-6.74
		746	-8.48	-5.10
LTE-M/NB-IoT Band20	Uplink	751	-8.65	-5.17
		756	-8.83	-5.21
		832	-9.79	-5.72
	Downlink	847	-10.48	-6.54
		862	-11.41	-7.26
		791	-9.57	-6.16
LTE-M/NB-IoT Band28	Uplink	806	-9.14	-5.44
		821	-9.38	-5.34
		703	-8.00	-5.13
	Downlink	725.5	-7.95	-5.31
		748	-8.55	-5.15
		758	-8.91	-5.23
		780.5	-9.92	-6.90
		803	-10.36	-6.72

February 16, 2026

Page 3 of 7

3.2. BLE Antenna 2D Radiation Diagrams

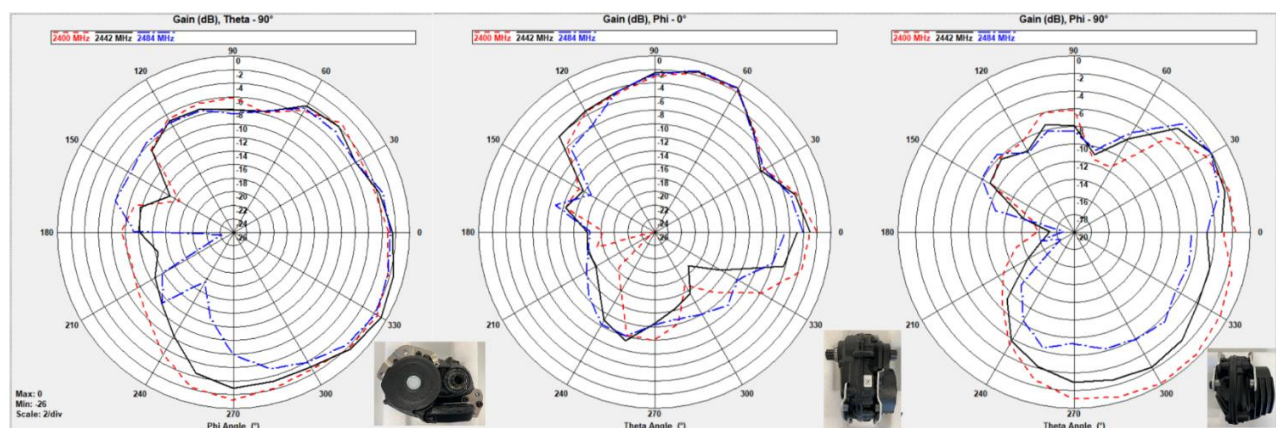


Figure 2. BLE Antenna 2D Radiation Diagrams.

3.3. GNSS Antenna 2D Radiation Diagrams

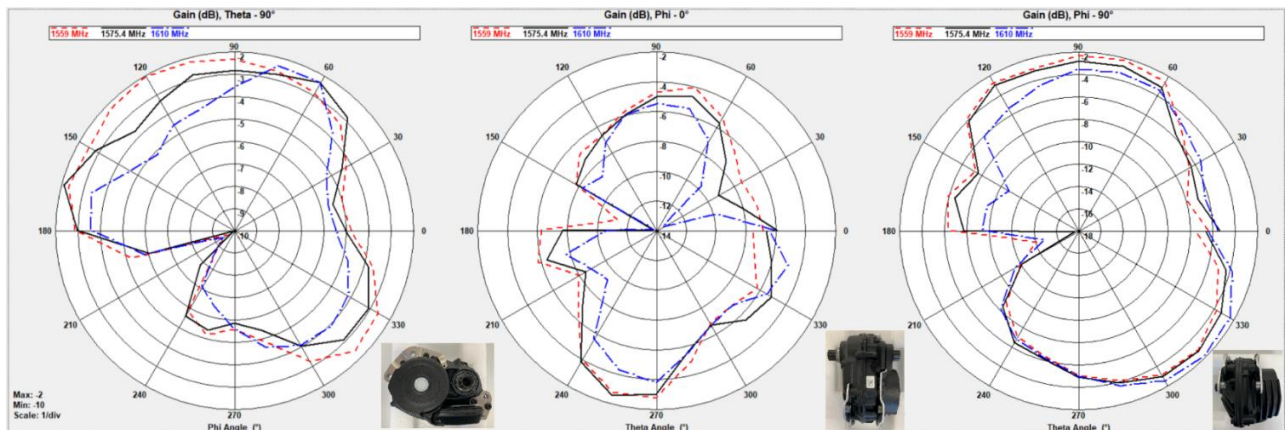


Figure 3. GNSS Antenna 2D Radiation Diagrams.

3.4. LTE-M/NB-IoT Band1 Antenna 2D Radiation Diagrams

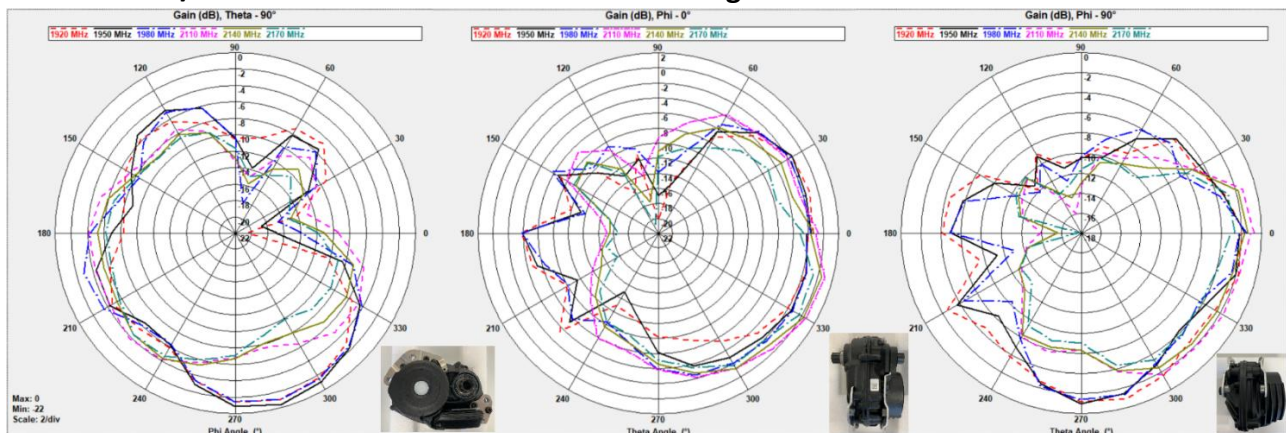


Figure 4. LTE-M/NB-IoT Band1 Antenna 2D Radiation Diagrams.

3.5. LTE-M/NB-IoT Band2 Antenna 2D Radiation Diagrams

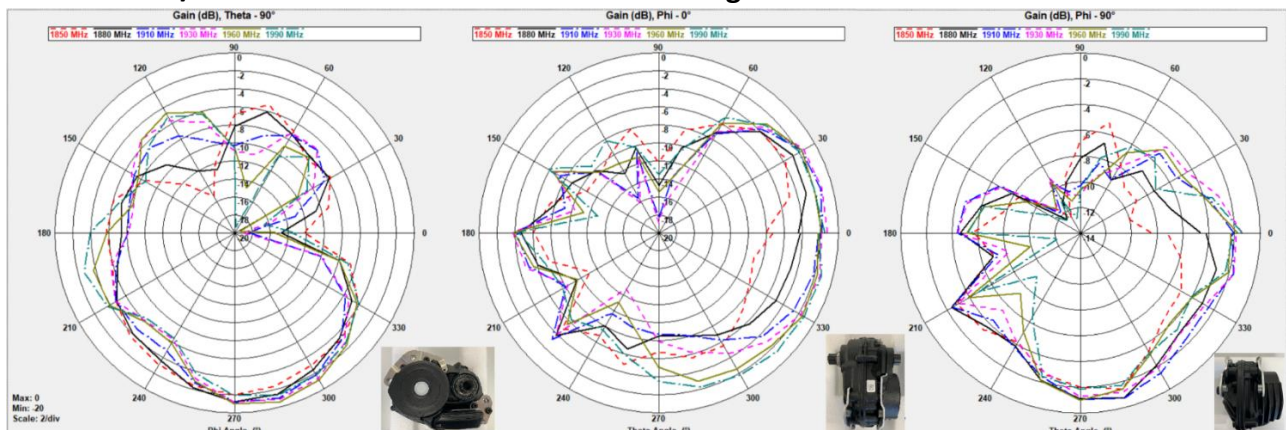


Figure 5. LTE-M/NB-IoT Band2 Antenna 2D Radiation Diagrams.

3.6. LTE-M/NB-IoT Band3 Antenna 2D Radiation Diagrams

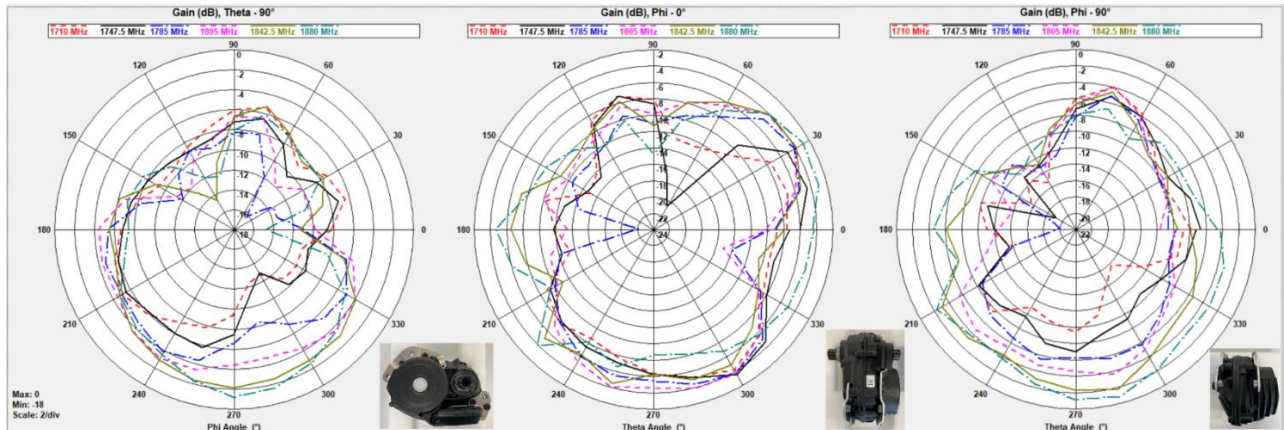


Figure 6. LTE-M/NB-IoT Band3 Antenna 2D Radiation Diagrams.

3.7. LTE-M/NB-IoT Band4 Antenna 2D Radiation Diagrams

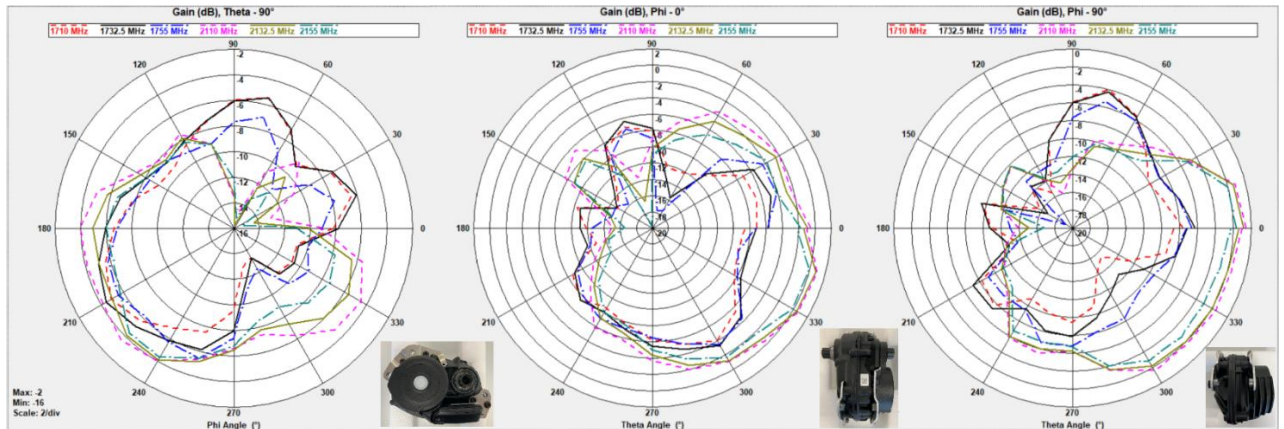


Figure 7. LTE-M/NB-IoT Band4 Antenna 2D Radiation Diagrams.

3.8. LTE-M/NB-IoT Band5 Antenna 2D Radiation Diagrams

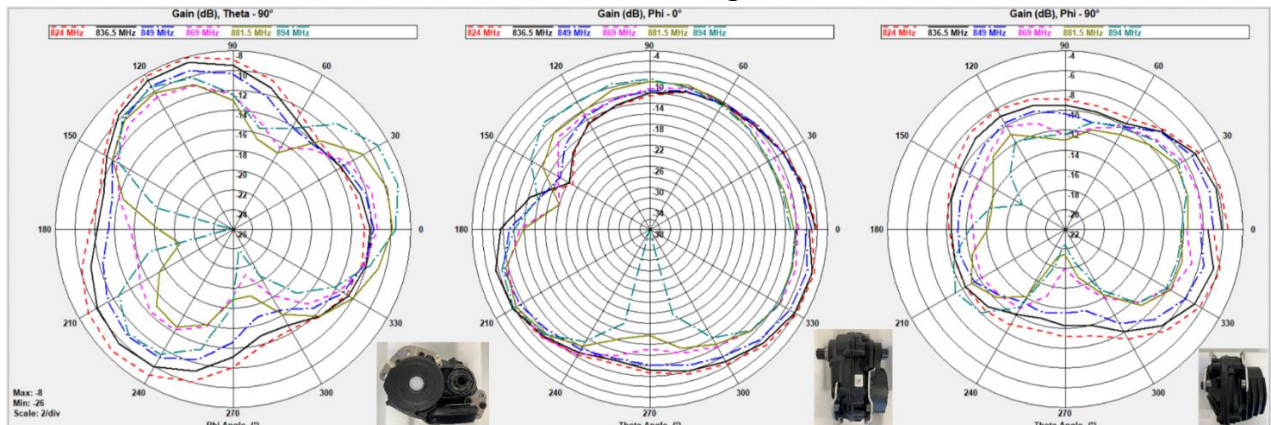


Figure 8. LTE-M/NB-IoT Band5 Antenna 2D Radiation Diagrams.

3.9. LTE-M/NB-IoT Band8 Antenna 2D Radiation Diagrams

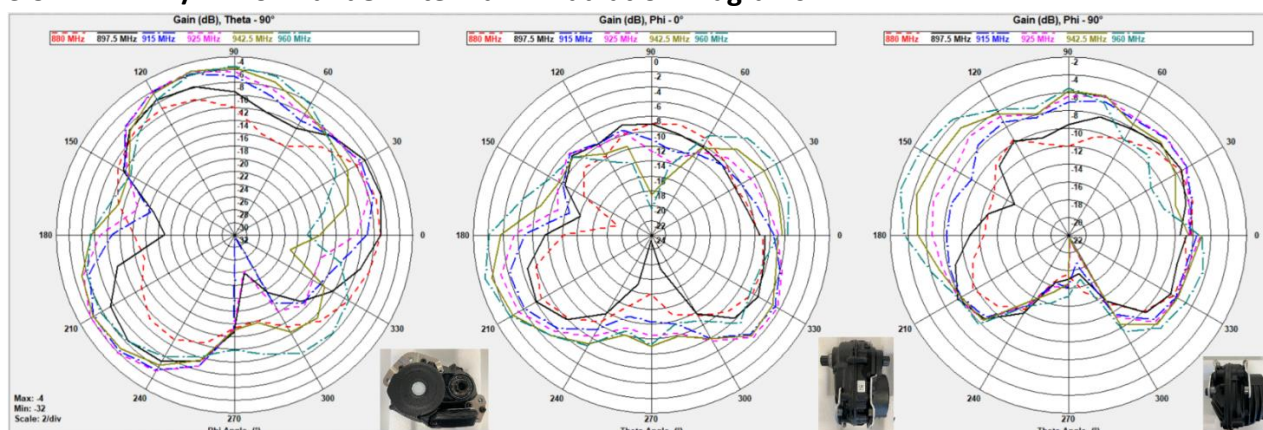


Figure 9. LTE-M/NB-IoT Band8 Antenna 2D Radiation Diagrams.

3.10. LTE-M/NB-IoT Band12 Antenna 2D Radiation Diagrams

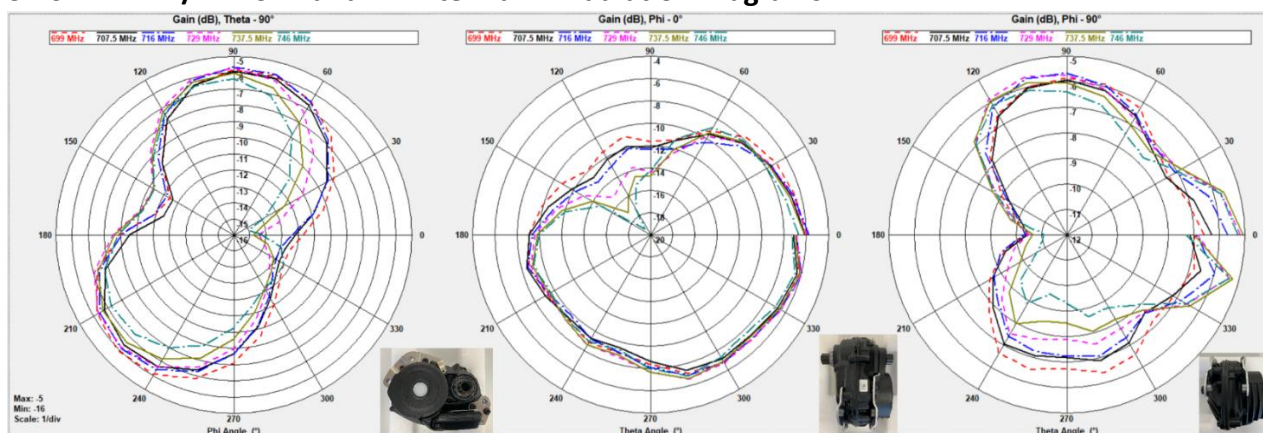


Figure 10. LTE-M/NB-IoT Band12 Antenna 2D Radiation Diagrams.

3.11. LTE-M/NB-IoT Band13 Antenna 2D Radiation Diagrams

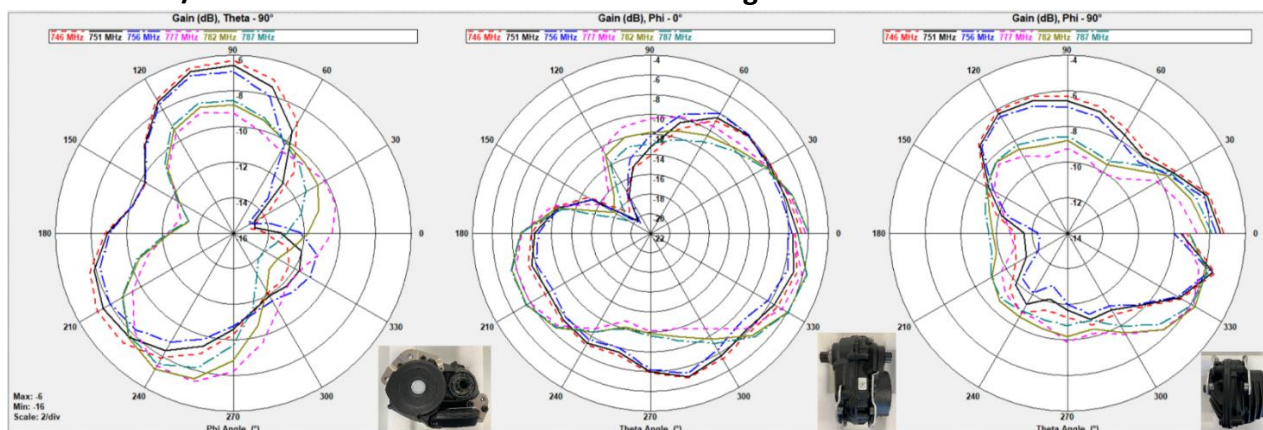


Figure 11. LTE-M/NB-IoT Band13 Antenna 2D Radiation Diagrams.

February 16, 2026

Page 7 of 7

3.12. LTE-M/NB-IoT Band20 Antenna 2D Radiation Diagrams

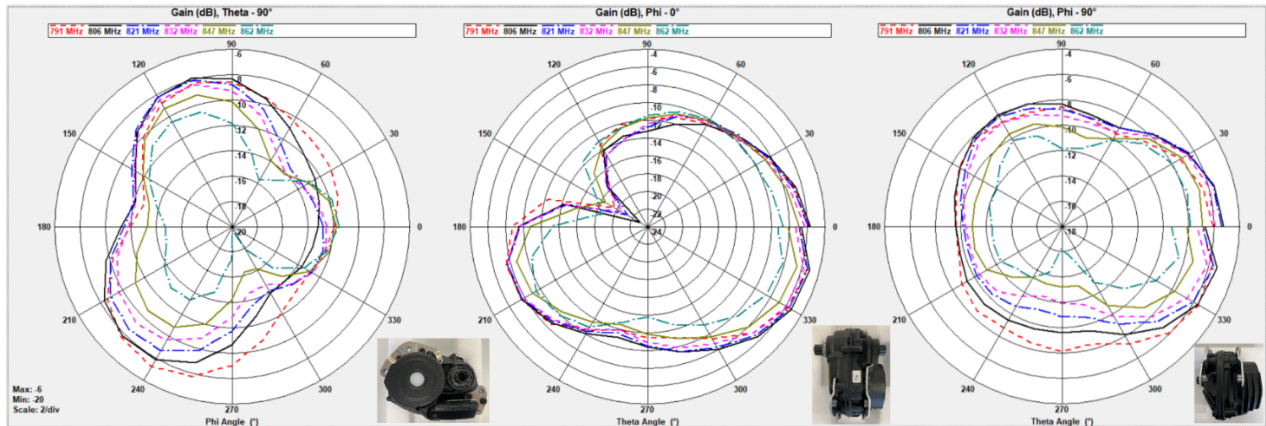


Figure 12. LTE-M/NB-IoT Band20 Antenna 2D Radiation Diagrams.

3.13. LTE-M/NB-IoT Band28 Antenna 2D Radiation Diagrams

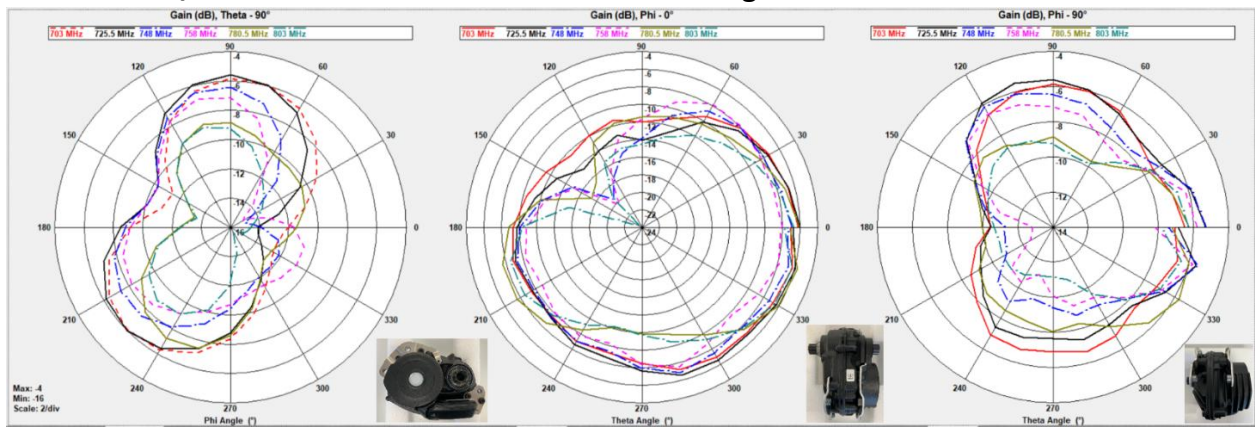


Figure 13. LTE-M/NB-IoT Band28 Antenna 2D Radiation Diagrams.