

## **Radar Antenna**

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Antenna Type: Integral Antennas

# BGT60LTR11AIP, BGT60LTR11BAIP, BGT60LTR11SAIP

## Datasheet



### 1 Electrical characteristics

## 1.7 Antenna characteristics

**Table 7** Antenna in package specifications

| Parameter                                                          | Symbol       | Values |      |      | Unit | Note or Test Condition |
|--------------------------------------------------------------------|--------------|--------|------|------|------|------------------------|
|                                                                    |              | Min.   | Typ. | Max. |      |                        |
| Operating frequency range<br>(BGT60LTR11AIP and<br>BGT60LTR11SAIP) | $f_{op}$     | 60.5   | –    | 61.5 | GHz  |                        |
| Transmitter antenna gain                                           | $G_{TX}$     | –      | 6    | –    | dBi  | @ Freq = 61.25 GHz     |
| Receiver antenna gain                                              | $G_{RX}$     | –      | 6    | –    | dBi  | @ Freq = 61.25 GHz     |
| Horizontal -6dB beamwidth                                          | $H_{-6dBbw}$ | –      | ±50  | –    | deg  | @ Freq = 61.25 GHz     |
| Vertical -6dB beamwidth                                            | $E_{-6dBbw}$ | –      | ±70  | –    | deg  | @ Freq = 61.25 GHz     |
| Horizontal sidelobe level (H-SLL)                                  |              | –      | 12   | –    | dB   | @ Freq = 61.25 GHz     |
| Vertical sidelobe level (V-SLL)                                    |              | –      | 12   | –    | dB   | @ Freq = 61.25 GHz     |
| TX-RX isolation on antenna level                                   |              | –      | 35   | –    | dB   | @ Freq = 61.25 GHz     |

### 7.1 Radiation pattern simulation results

To analyze the sensor radiation characteristics, the radiation pattern of a BGT60LTR11AIP EBG shield configured in CW mode is simulated along the H-plane and E-plane of the sensor. Figure 26a shows the realized gain of the transmitting antenna in H-plane and E-plane at a frequency of 61 GHz. Figure 26b shows the antenna characteristics of the receiving antenna in H-plane and E-plane at a frequency of 61 GHz.

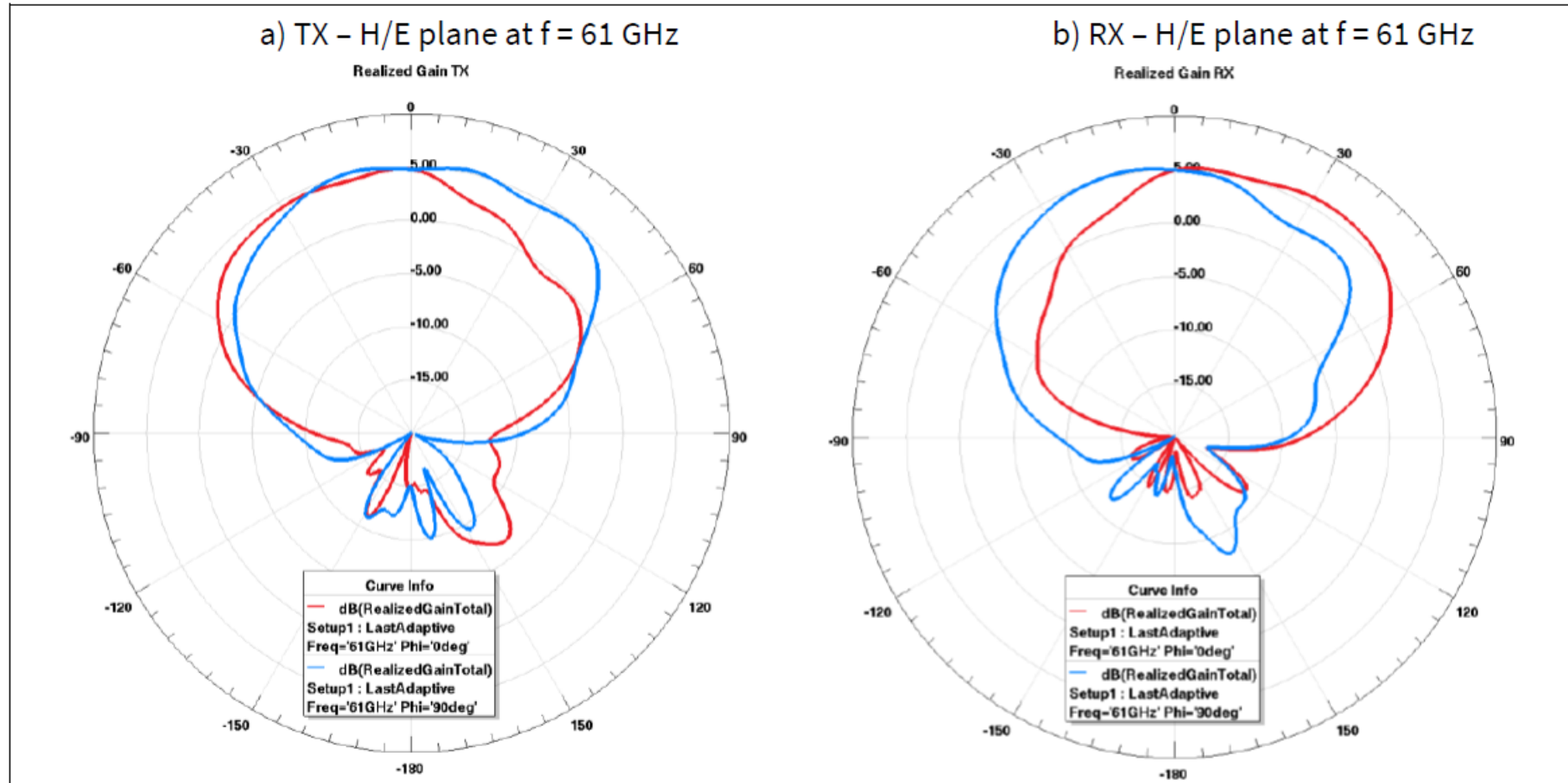
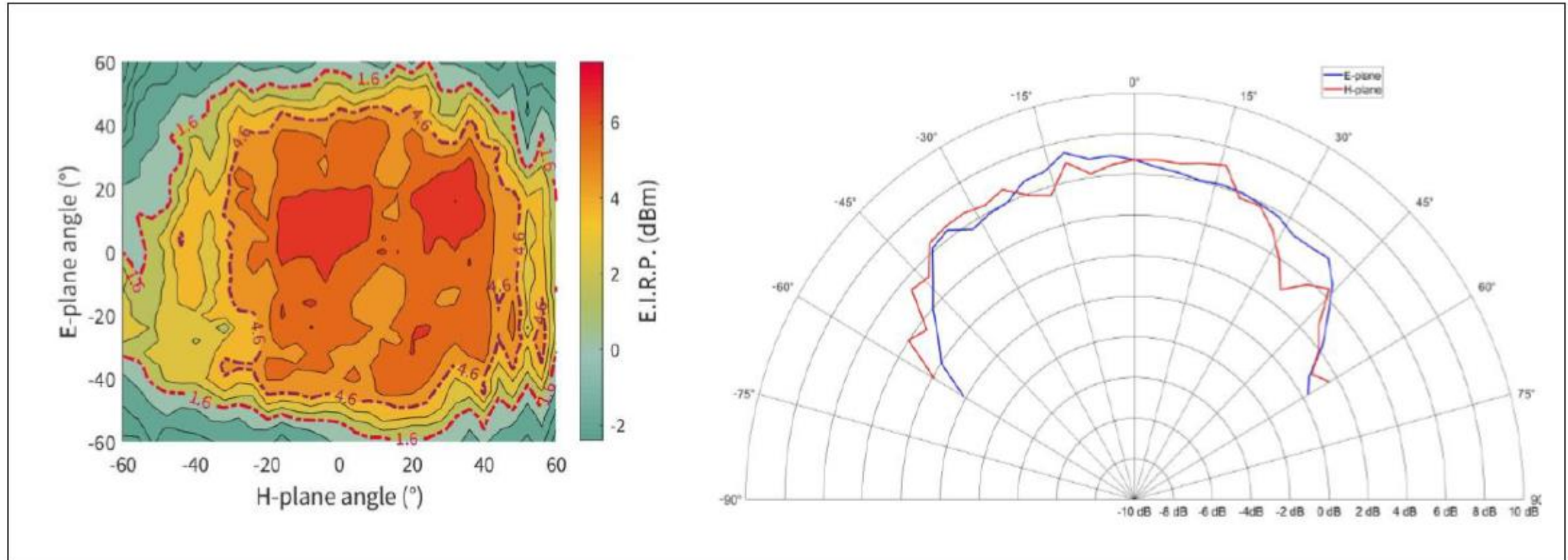


Figure 26 Radiation pattern simulations of the BGT60LTR11AIP EBG shield in CW mode

The equivalent isotropically radiated power (EIRP) of the transmitter path is measured along the H-plane and E-plane of the sensor in an anechoic chamber with a spectrum analyzer. Figure 27 shows the EIRP gain of the transmitting antenna in H-plane and E-plane at a frequency of 61 GHz.



**Figure 27** EIRP TX measurement result at carrier frequency of 61 GHz