

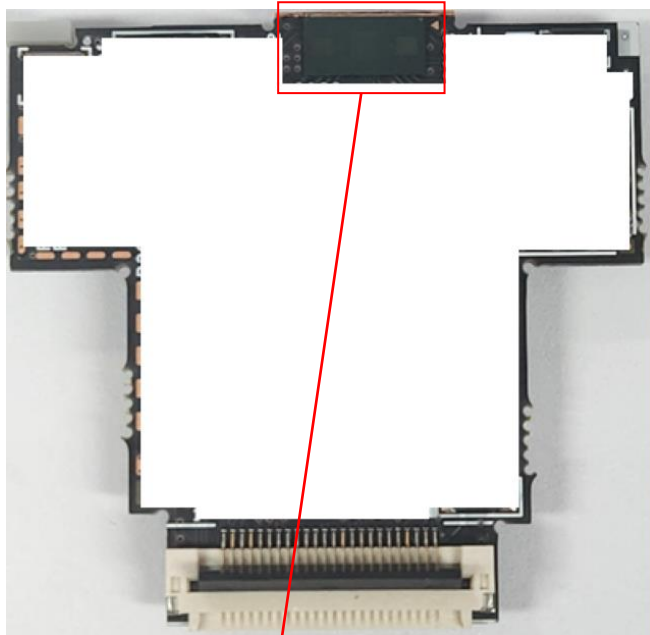
FRAME RADAR

(Antenna Measured Result)

CHEMTRONICS 개발 1팀

2024. 08. 13

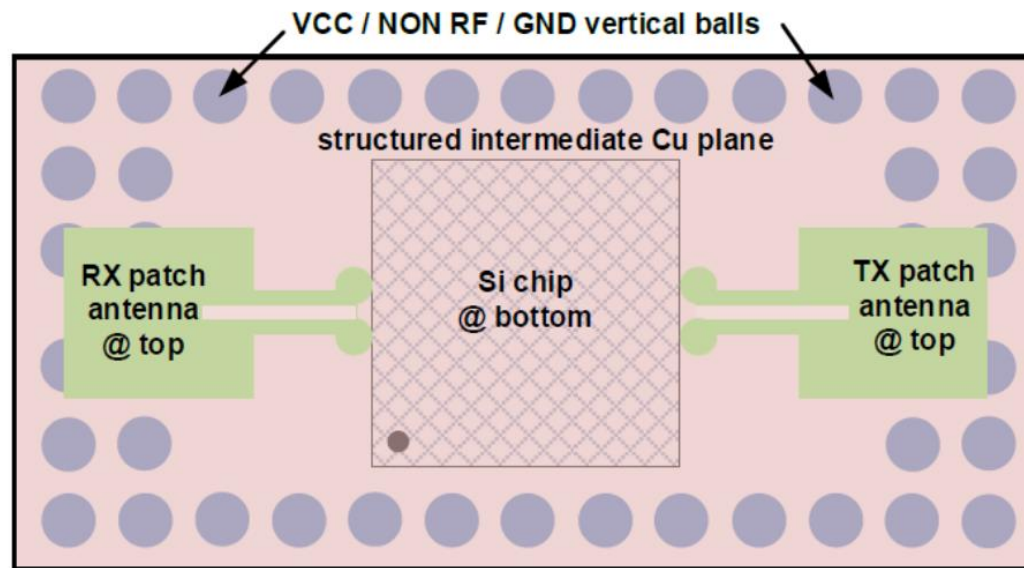
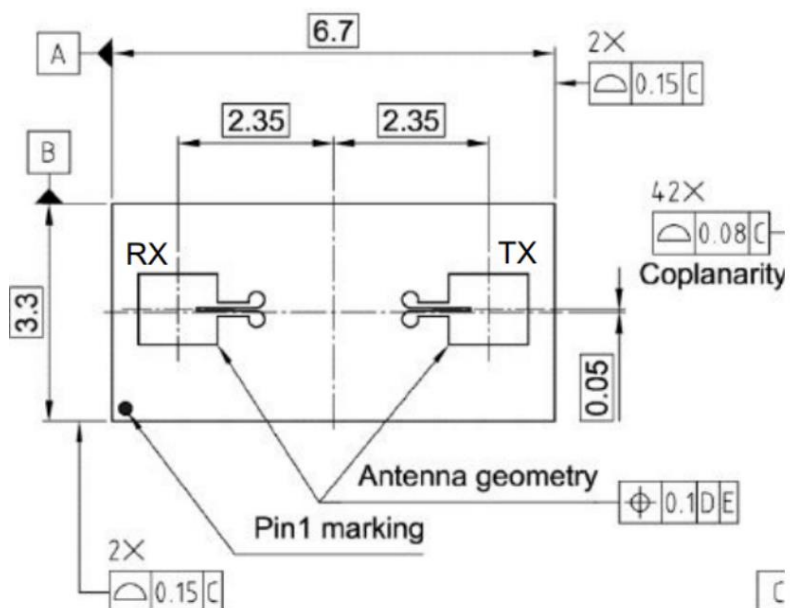
RADAR Module Picture



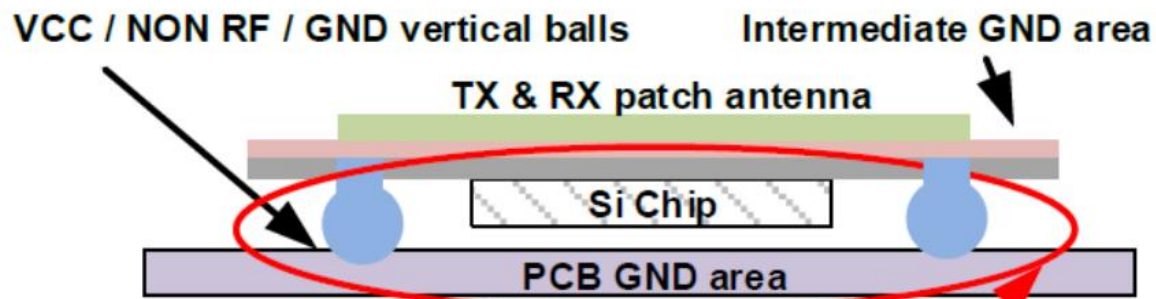
BGT60LTR11AIP
(ANT)

- Antenna Size : 1.2mm x 1.07mm (Tx, Rx)
- Antenna Type : Patch type Antenna in package
- Antenna Spec : T/Rx Antenna Gain typ. 6dBi @ $\pm 50^\circ$ /Az, $\pm 70^\circ$ / EL(-6dB)

Antenna Dimension



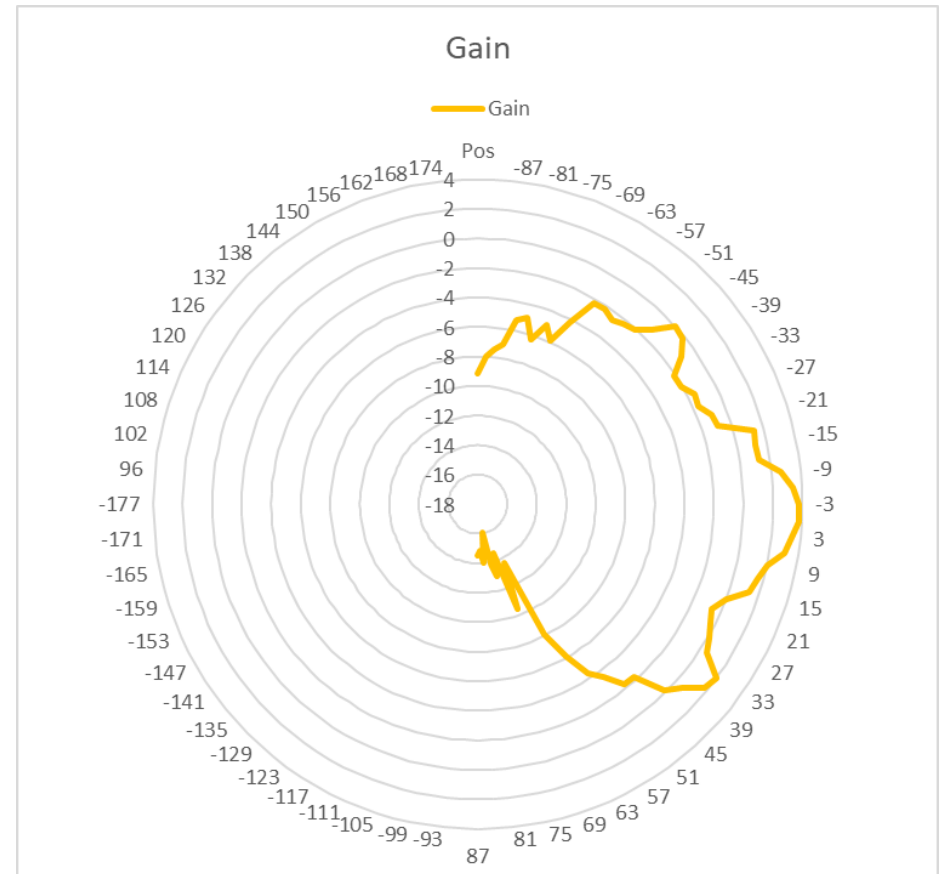
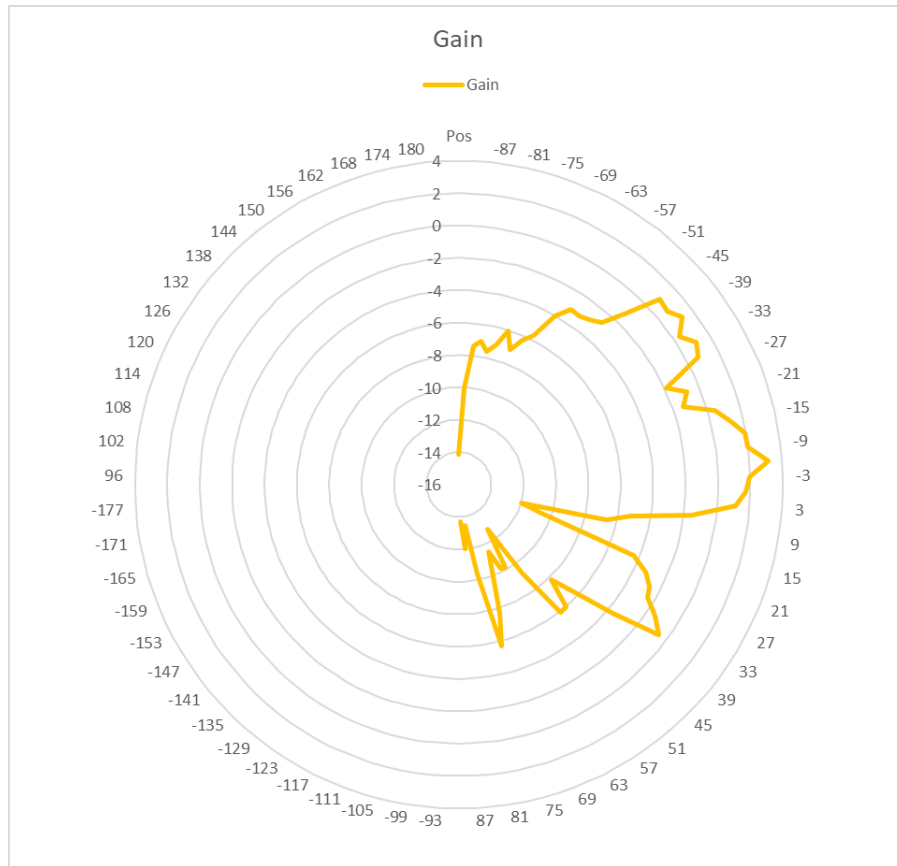
BGT60LTR11AIP System in package - through view from top side



Chip is fully shielded via 3D Faraday cage based on intermediate GND plane, vertical balls and PCB GND plane

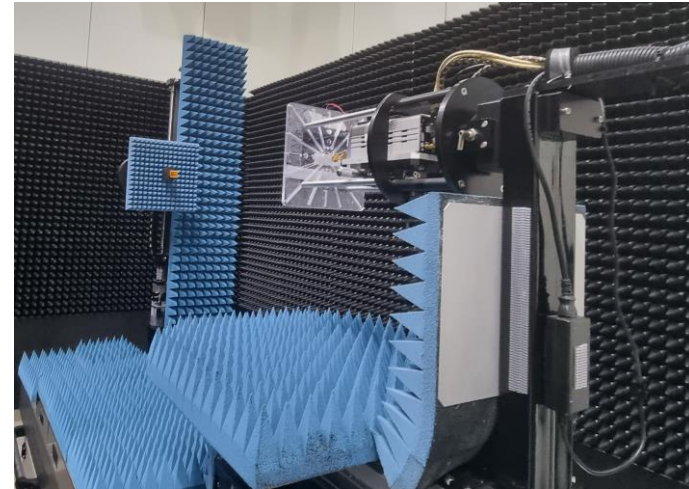
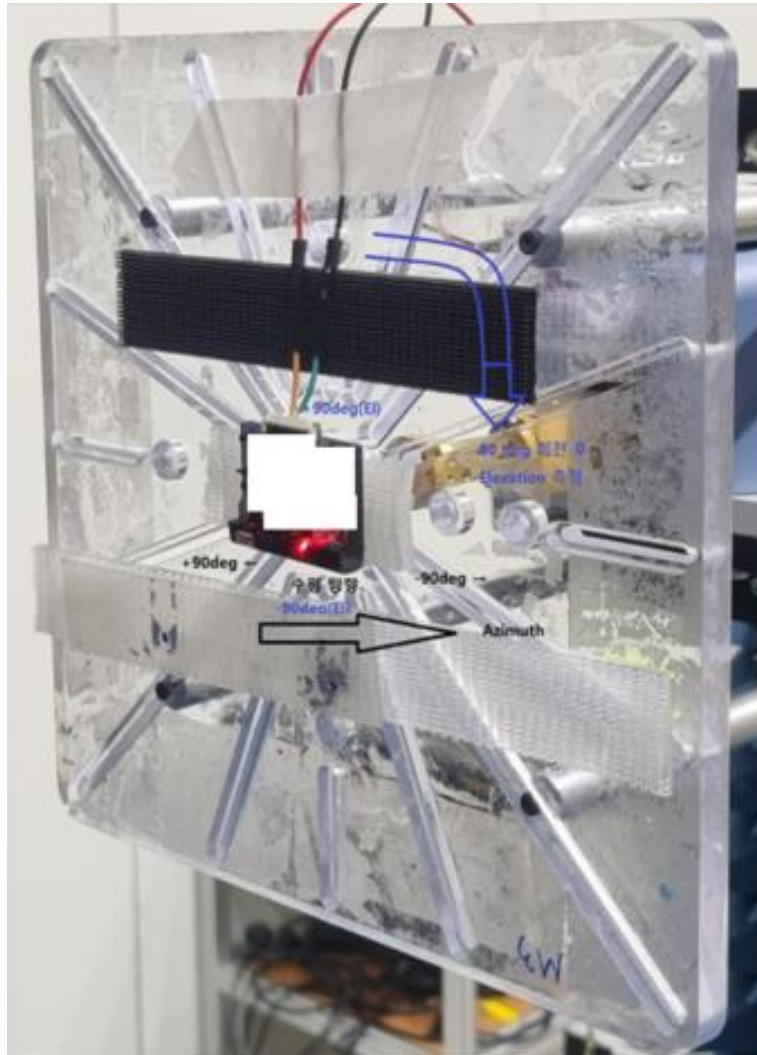
PCB in Azimuth orientation
Radar DUT patch horizontal

PCB in Elevation orientation
Radar DUT patch vertical



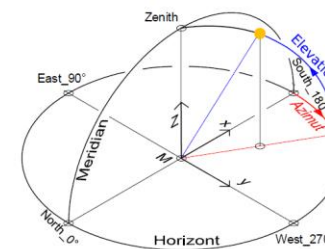
Antenna pattern measurement Setup for Azimuth and Elevation

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Antenna pattern measurement

- Measurement done on a 360° horizontal rotating table
- Test antenna in north/south direction, 3m apart of the DUT in south direction
- Measurement starts with DUT antenna looking into north direction
- Table rotates clockwise (mathematical negative) from north (12:00_0°) via east (03:00_90°) to south (06:00_180°), locking to Ant.- via west (09:00_270°) back to north (12:00_360°)



Azimuth – angle acc. drawing:
0° ...180°: "N-EAST-S" half side
180° ...360°: "S-EAST-N" half side

Elevation – angle acc. drawing:
0° ...180°: below horizon
180° ...360°: above horizon

안테나 모델명	BGT60LTR11AIP
측정장소(이름/주소)	인천광역시 연수구 벤처로 82, IoT기술지원센터 송도센터
측정자(싸인, 날짜)	2024.08.13 (Chemtronics 김정영 부장) 김정영
안테나 계인 측정절차(참조한 규격이 있다면 명기)	Cylindrical NF Probing , (Az) $\pm 90^\circ$ / (El) $\pm 60^\circ$
모듈 사진(안테나별 확대사진)	상단 참조
안테나 type (메탈안테나, 칩안테나)	AiP
안테나 사양 (물리적크기, 전기적특성)	상단 참조
Test Setup 사진(챔버 사진, 안테나 배치된 클로즈업된 사진)	상단 참조
안테나 GAIN 측정 s/w 명	CG20202 ver 1.0.7
측정 계측기 리스트 및 최신 검교정일정	R&S ZNA 67, 교정일 2023.12.20
방사패턴(2D/3D) 포함	상단 참조 (3D 불가)

Antenna model	BGT60LTR11AIP
Test lab	Incheon Yeonsu-gu Venture Road 82, IoT Technology Support Center Songdo Center, Korea
Test Engineer	2024.08.13 (Chemtronics Kim JungYoung) 김경영
Antenna gain measurement procedure	Cylindrical NF Probing , (Az) \pm 90° / (El) \pm 60°
Antenna type (메탈안테나, 칩안테나)	AiP
Test software / version	CG20202 ver 1.0.7
Test equipment	R&S ZNA 67, Last calibration date 2023.12.20