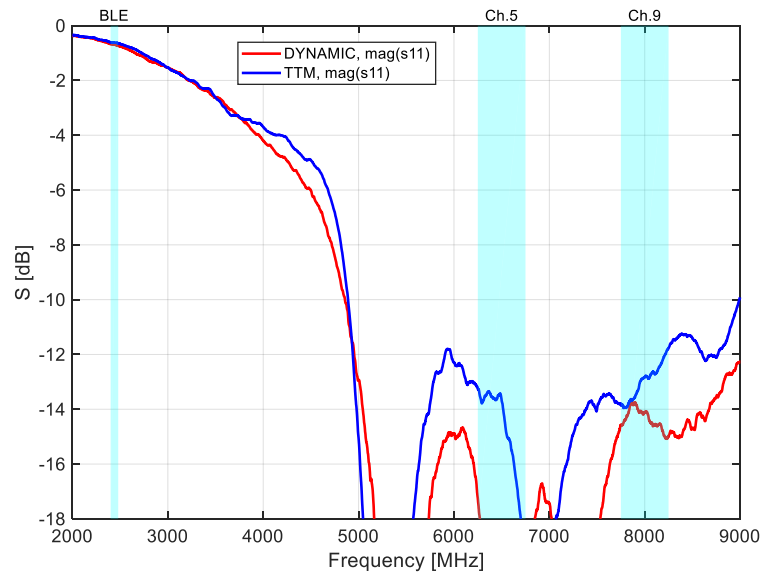


PLATFORM UWB+BLE CAN TRX

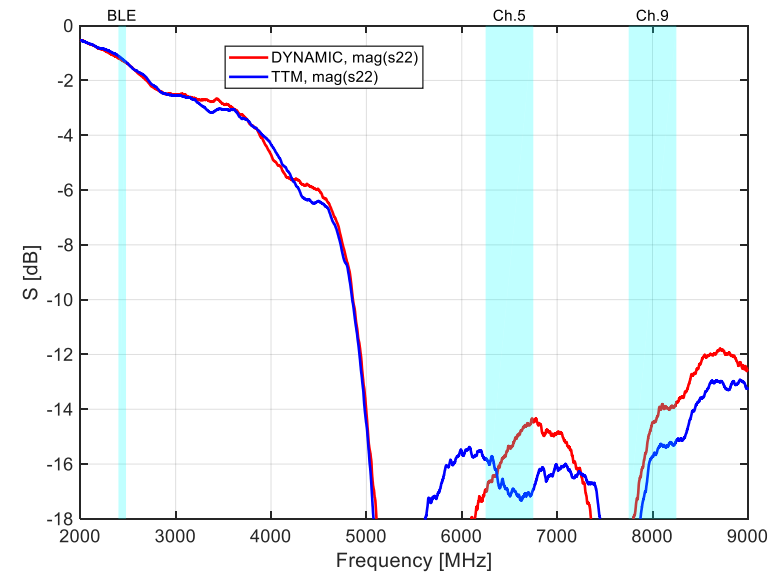
Serial Production PCBs – Antenna Measurements
(12.03.2021)

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UWB Antennas - Return Loss



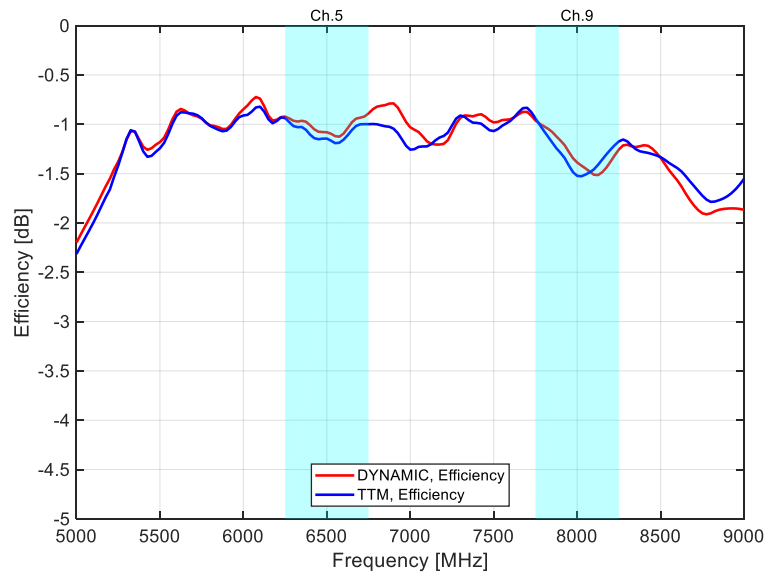
UWB1



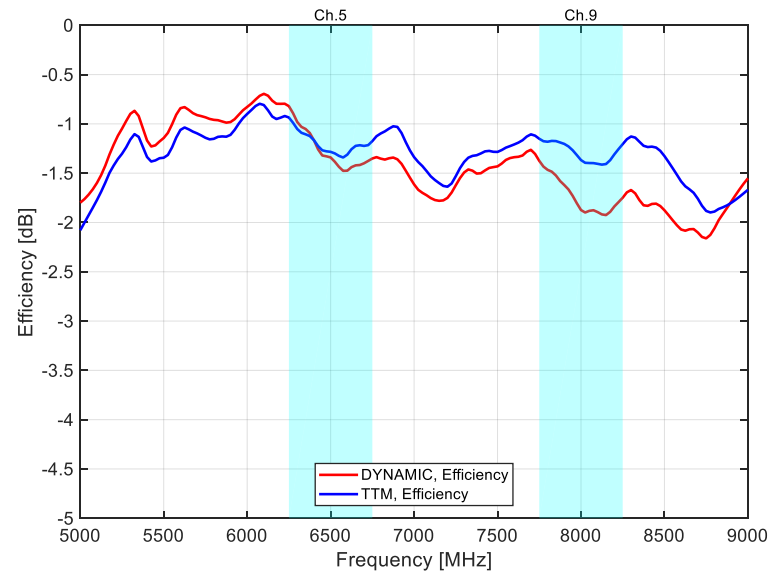
UWB2

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UWB Antennas – 3D Average Radiation Efficiency



UWB1



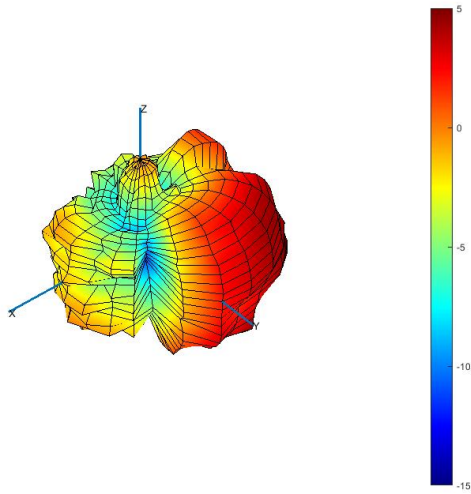
UWB2

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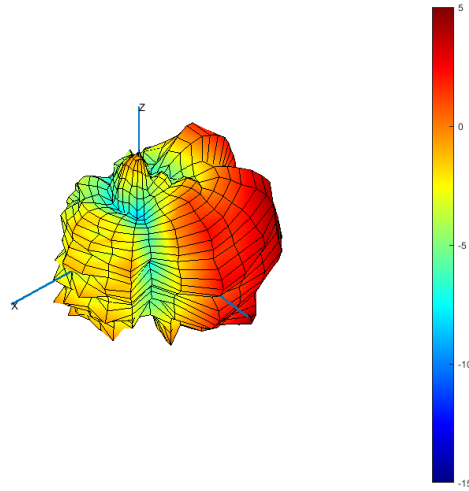
3D Radiation Patterns – UWB1 – Ch.5

f=6250MHz Max: 6.01dBi Min:-12.64dBi Average: -1.0dB

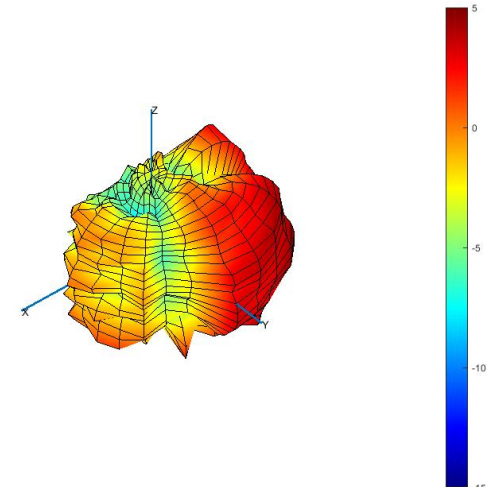
DYNAMIC



f=6500MHz Max: 4.84dBi Min:-13.82dBi Average: -1.3dB

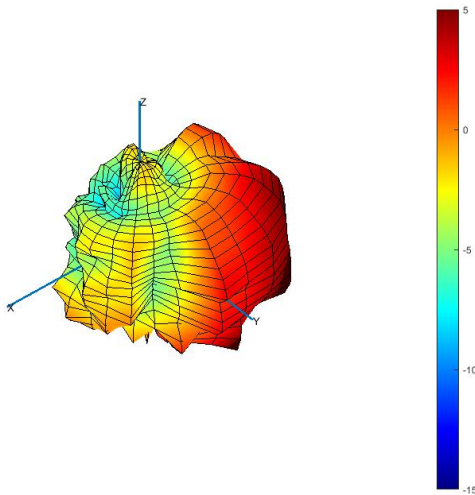


f=6750MHz Max: 5.34dBi Min:-16.54dBi Average: -0.8dB

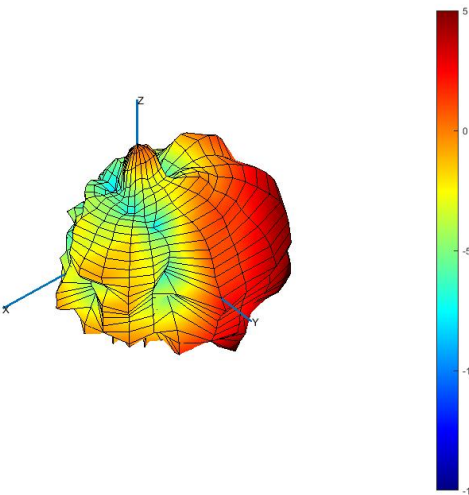


f=6250MHz Max: 6.44dBi Min:-13.51dBi Average: -1.0dB

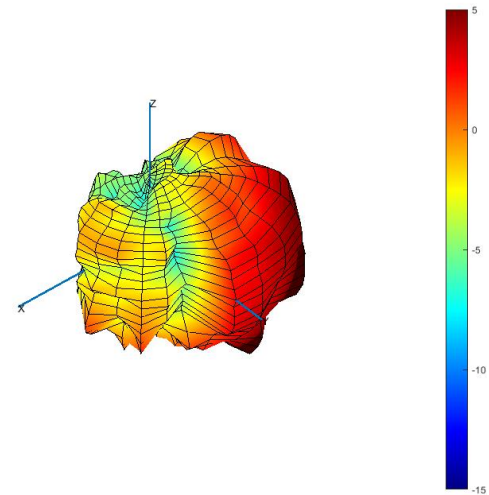
TTM



f=6500MHz Max: 5.96dBi Min:-12.77dBi Average: -1.4dB



f=6750MHz Max: 6.91dBi Min:-15.27dBi Average: -0.9dB

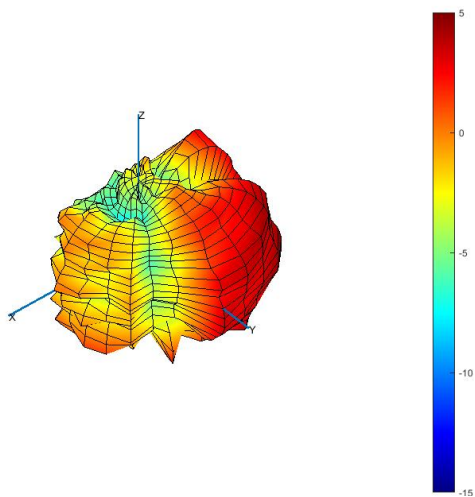


PLATFORM UWB+BLE CAN TRX

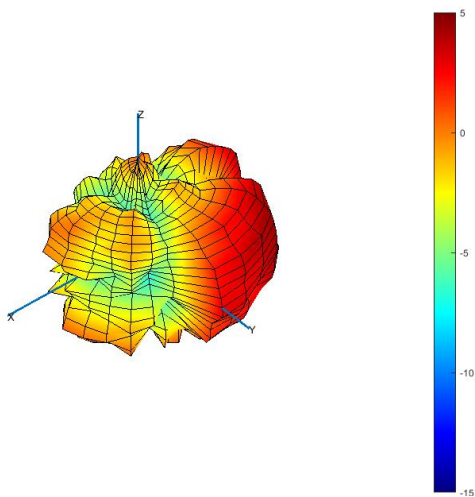
3D Radiation Patterns – UWB1 – Ch.6

f=6750MHz Max: 5.34dBi Min:-16.54dBi Average: -0.8dB

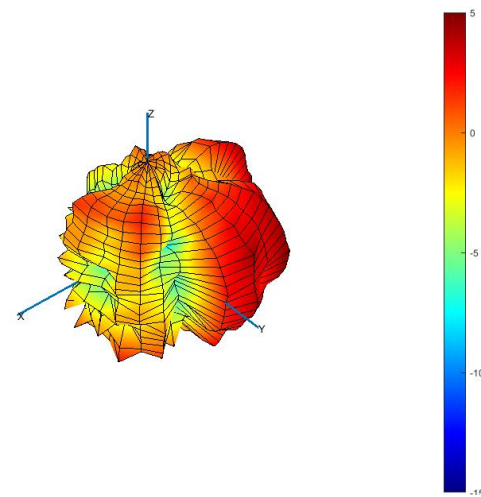
DYNAMIC



f=7000MHz Max: 4.98dBi Min:-15.76dBi Average: -1.1dB

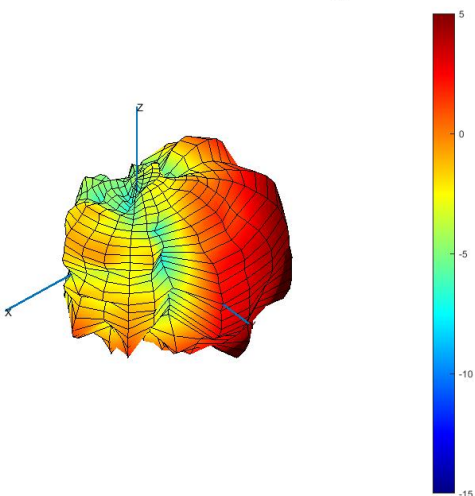


f=7250MHz Max: 5.08dBi Min:-17.10dBi Average: -0.8dB

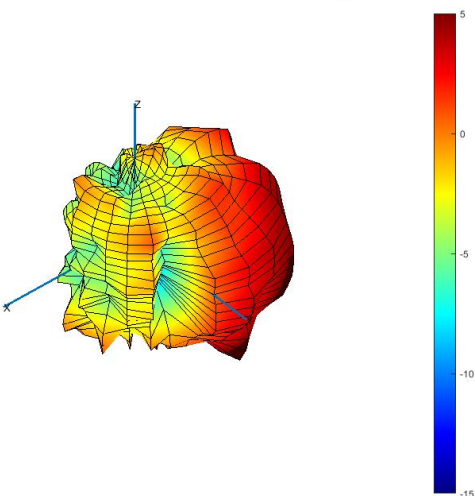


f=6750MHz Max: 6.91dBi Min:-15.27dBi Average: -0.9dB

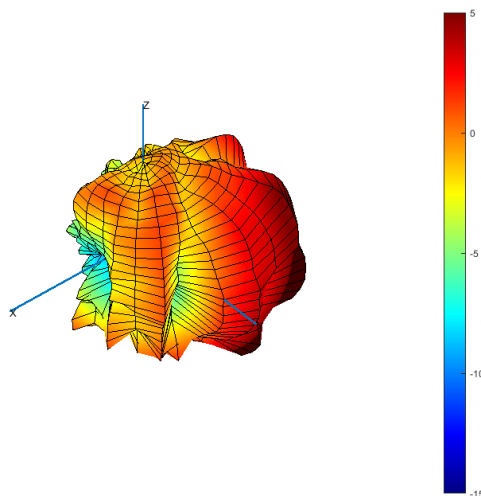
TTM



f=7000MHz Max: 6.98dBi Min:-19.03dBi Average: -1.2dB



f=7250MHz Max: 7.03dBi Min:-16.16dBi Average: -0.7dB

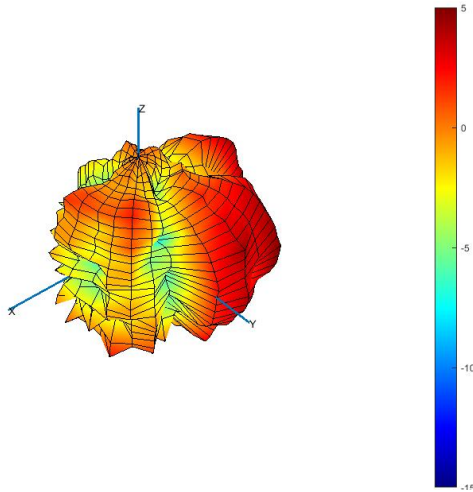


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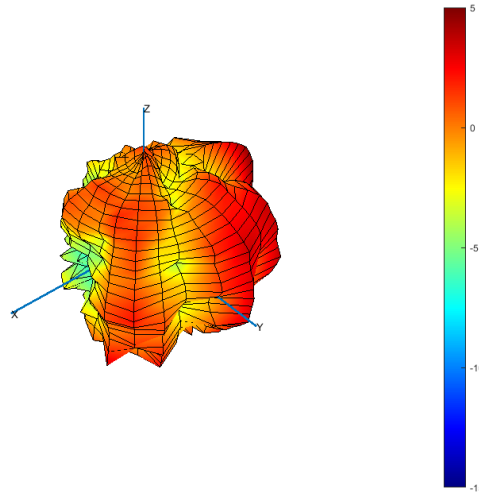
3D Radiation Patterns – UWB1 – Ch.8

f=7250MHz Max: 5.08dBi Min:-17.10dBi Average: -0.8dB

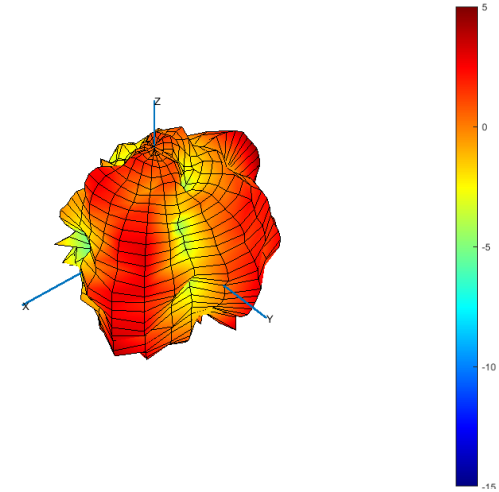
DYNAMIC



f=7500MHz Max: 4.75dBi Min:-18.56dBi Average: -0.9dB

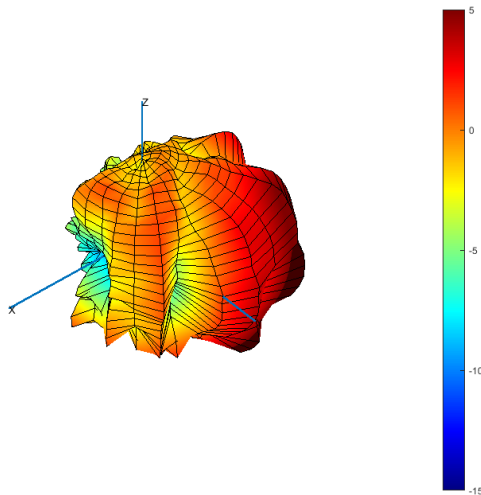


f=7750MHz Max: 5.11dBi Min:-14.98dBi Average: -0.7dB

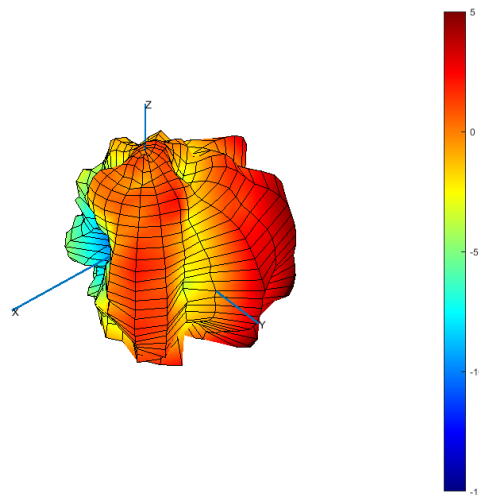


f=7250MHz Max: 7.03dBi Min:-16.16dBi Average: -0.7dB

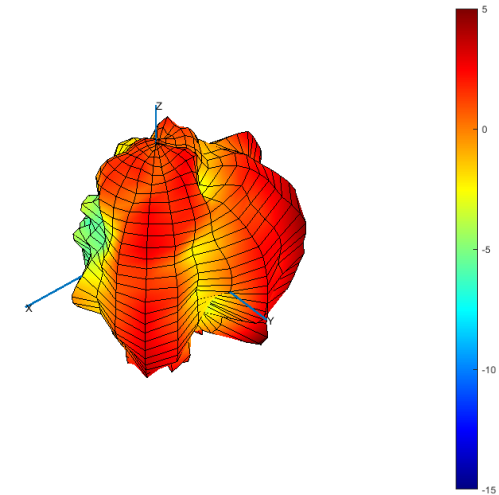
TTM



f=7500MHz Max: 5.82dBi Min:-17.05dBi Average: -0.9dB



f=7750MHz Max: 5.47dBi Min:-13.91dBi Average: -0.6dB

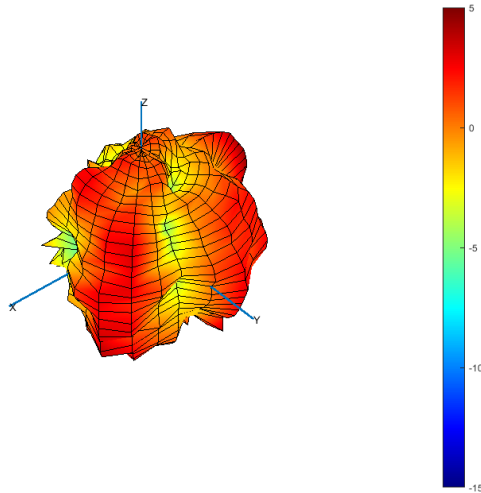


PLATFORM UWB+BLE CAN TRX

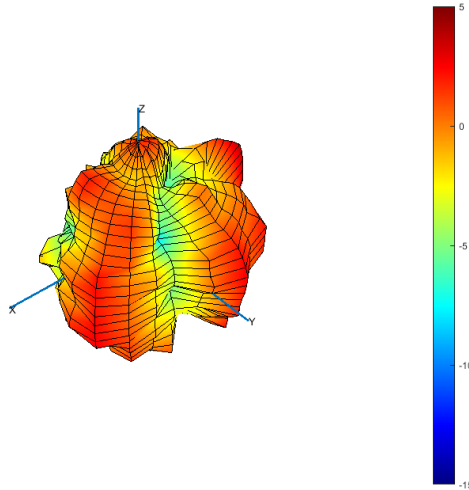
3D Radiation Patterns – UWB1 – Ch.9

f=7750MHz Max: 5.11dBi Min:-14.98dBi Average: -0.7dB

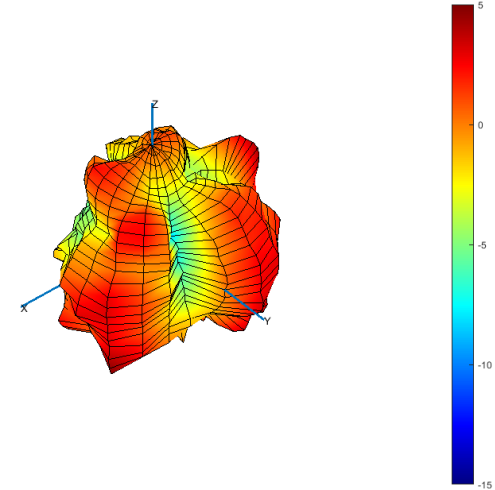
DYNAMIC



f=8000MHz Max: 3.71dBi Min:-14.32dBi Average: -1.5dB

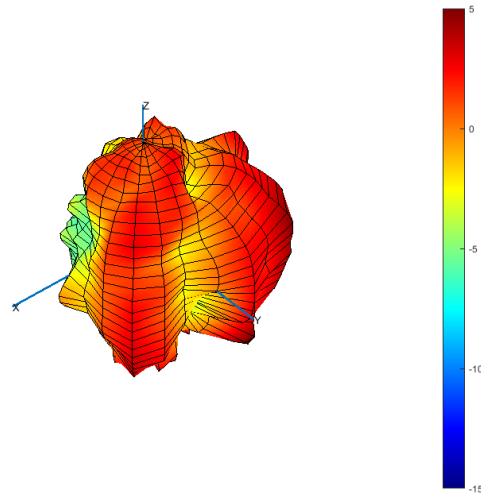


f=8250MHz Max: 4.79dBi Min:-15.19dBi Average: -1.0dB

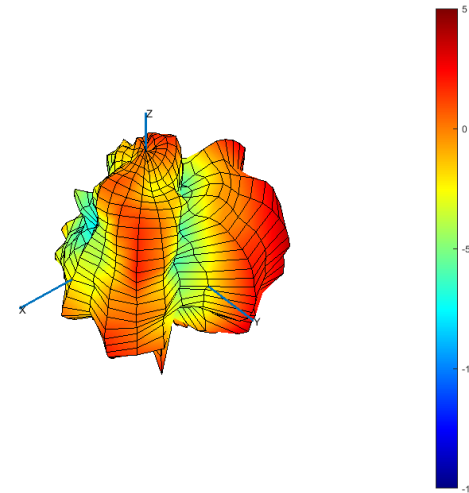


f=7750MHz Max: 5.47dBi Min:-13.91dBi Average: -0.6dB

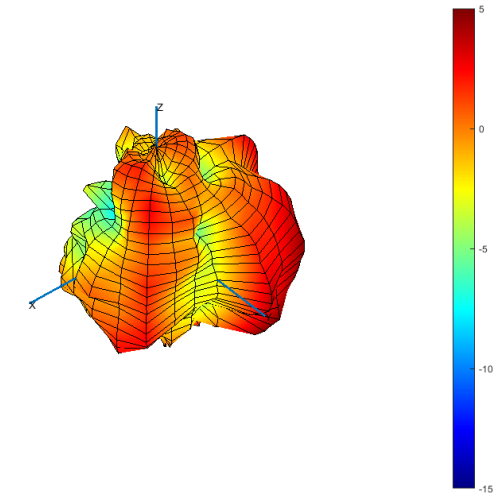
TTM



f=8000MHz Max: 4.04dBi Min:-21.95dBi Average: -1.7dB



f=8250MHz Max: 5.27dBi Min:-14.44dBi Average: -1.0dB

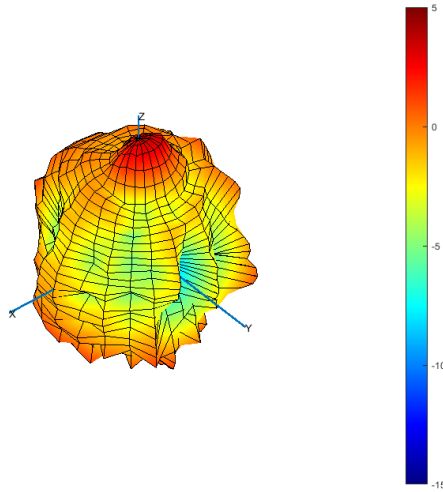


PLATFORM UWB+BLE CAN TRX

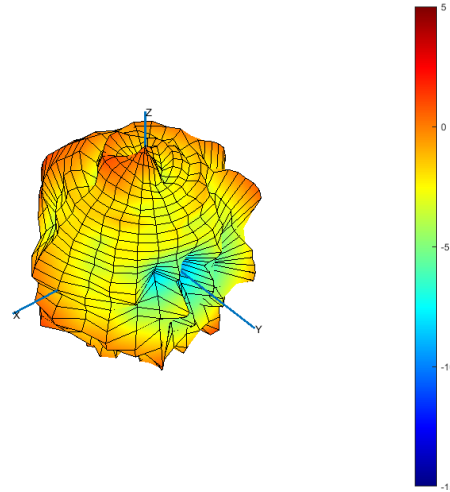
3D Radiation Patterns – UWB2 – Ch.5

f=6250MHz Max: 3.37dBi Min:-15.64dBi Average: -1.5dB

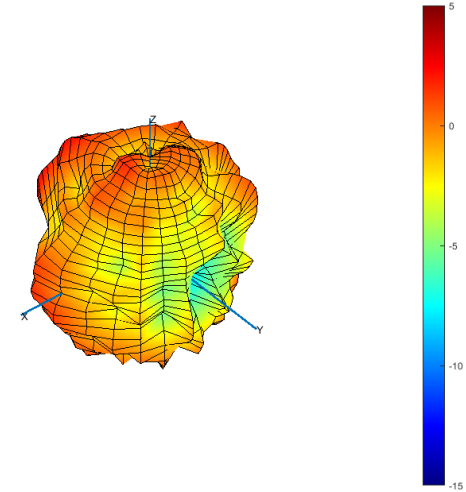
DYNAMIC



f=6500MHz Max: 2.51dBi Min:-12.88dBi Average: -2.1dB

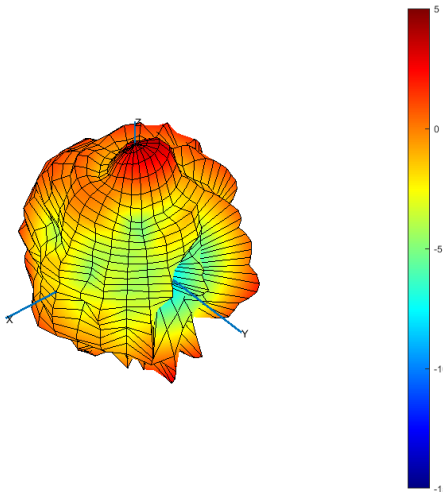


f=6750MHz Max: 2.72dBi Min:-13.11dBi Average: -1.3dB

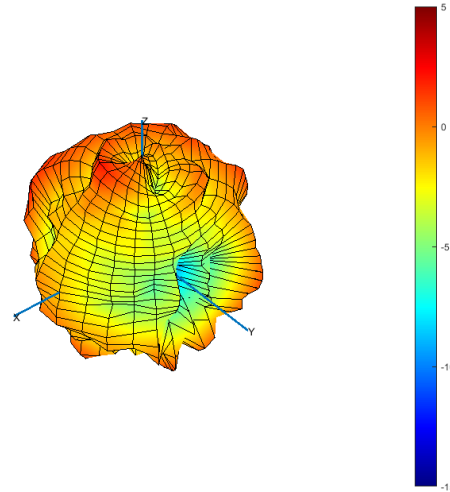


f=6250MHz Max: 3.66dBi Min:-14.25dBi Average: -1.1dB

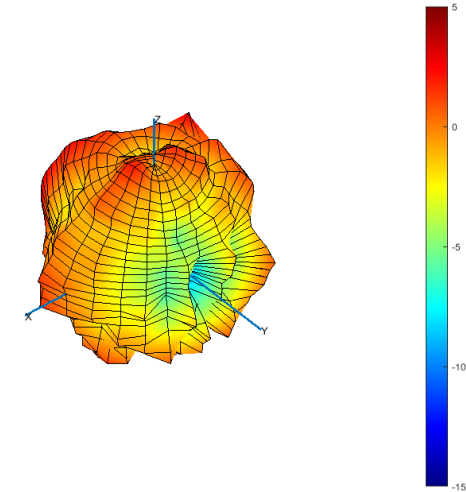
TTM



f=6500MHz Max: 2.66dBi Min:-14.54dBi Average: -1.5dB



f=6750MHz Max: 2.95dBi Min:-14.45dBi Average: -1.2dB

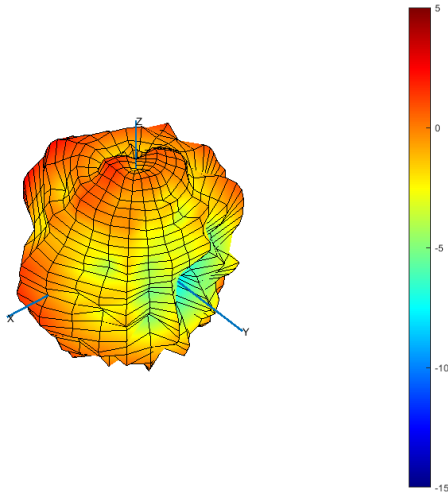


PLATFORM UWB+BLE CAN TRX

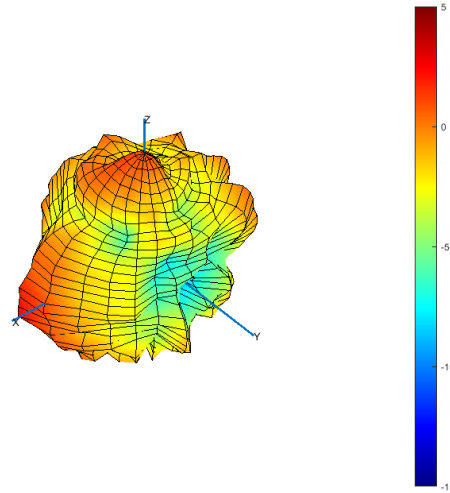
3D Radiation Patterns – UWB2 – Ch.6

f=6750MHz Max: 2.72dBi Min:-13.11dBi Average: -1.3dB

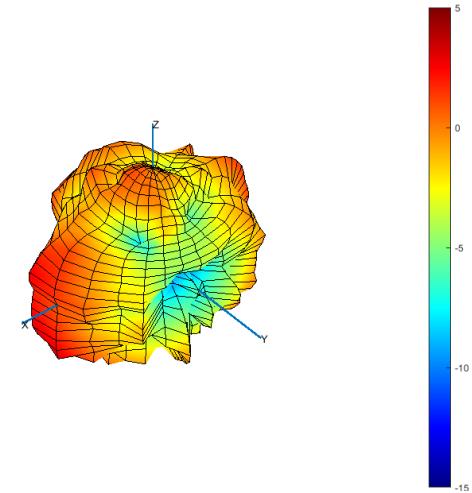
DYNAMIC



f=7000MHz Max: 2.55dBi Min:-14.98dBi Average: -2.3dB

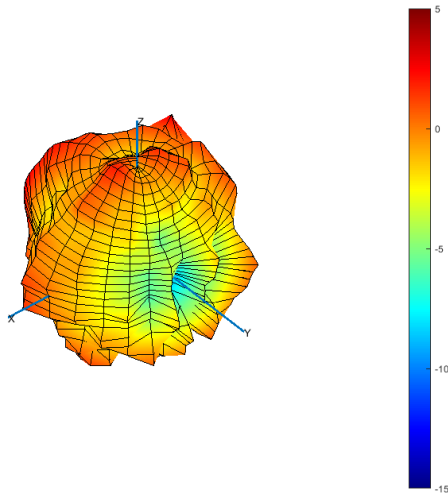


f=7250MHz Max: 3.23dBi Min:-15.68dBi Average: -1.7dB

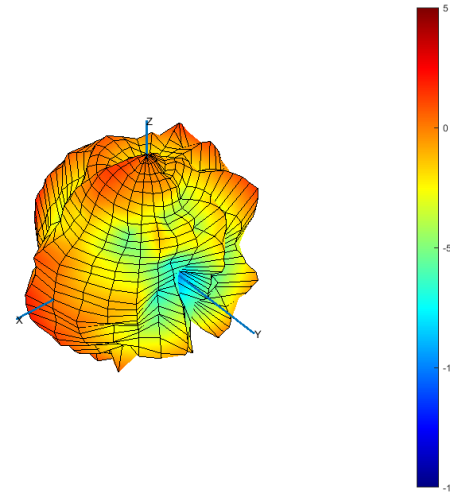


f=6750MHz Max: 2.95dBi Min:-14.45dBi Average: -1.2dB

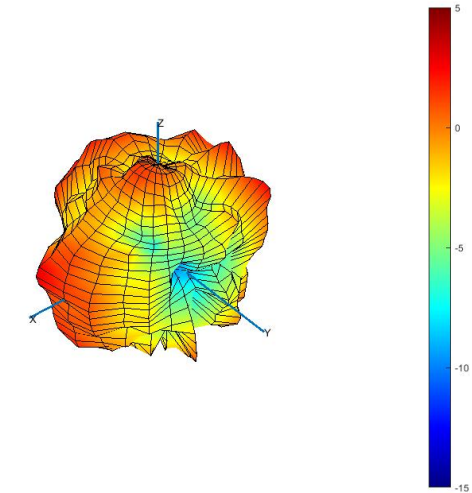
TTM



f=7000MHz Max: 2.72dBi Min:-15.61dBi Average: -1.6dB



f=7250MHz Max: 3.45dBi Min:-14.68dBi Average: -1.3dB

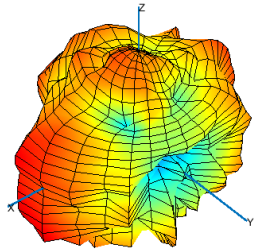


PLATFORM UWB+BLE CAN TRX

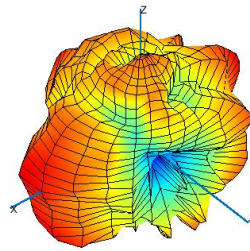
3D Radiation Patterns – UWB2 – Ch.8

f=7250MHz Max: 3.23dBi Min:-15.68dBi Average: -1.7dB

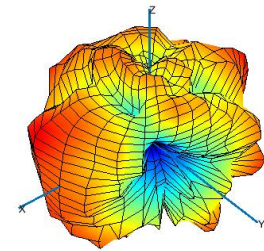
DYNAMIC



f=7500MHz Max: 3.91dBi Min:-17.30dBi Average: -1.6dB

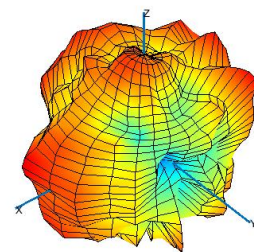


f=7750MHz Max: 3.80dBi Min:-19.84dBi Average: -1.6dB

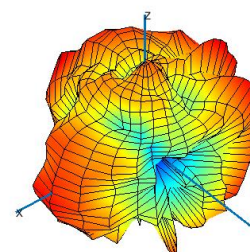


f=7250MHz Max: 3.45dBi Min:-14.68dBi Average: -1.3dB

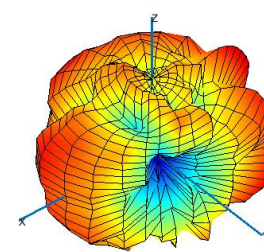
TTM



f=7500MHz Max: 4.40dBi Min:-17.30dBi Average: -1.2dB



f=7750MHz Max: 4.63dBi Min:-17.72dBi Average: -1.1dB

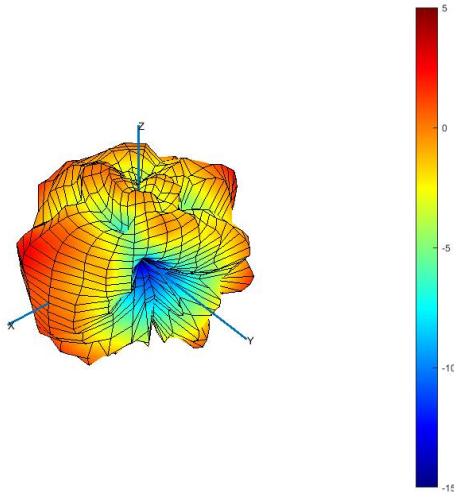


PLATFORM UWB+BLE CAN TRX

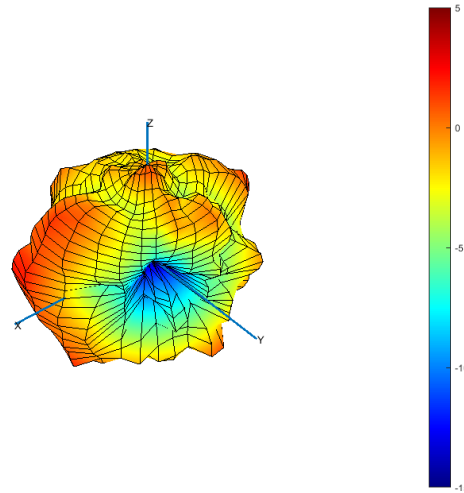
3D Radiation Patterns – UWB2 – Ch.9

f=7750MHz Max: 3.80dBi Min:-19.84dBi Average: -1.6dB

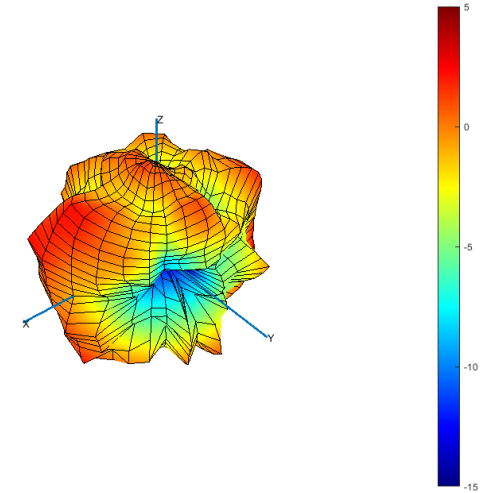
DYNAMIC



f=8000MHz Max: 2.86dBi Min:-25.00dBi Average: -2.2dB

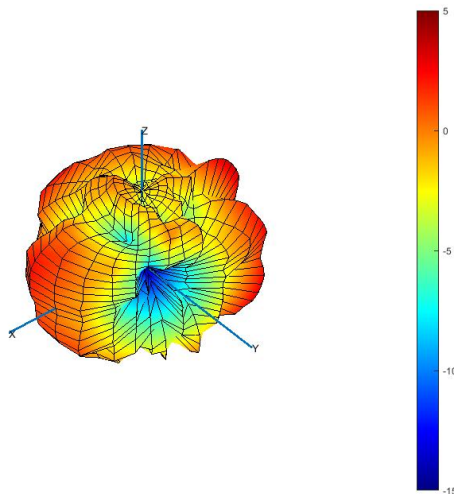


f=8250MHz Max: 3.57dBi Min:-19.76dBi Average: -1.8dB

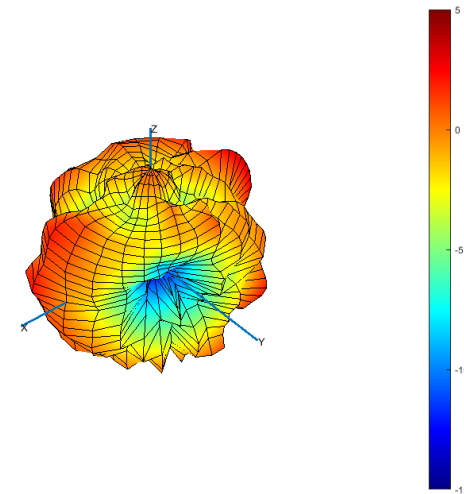


f=7750MHz Max: 4.63dBi Min:-17.72dBi Average: -1.1dB

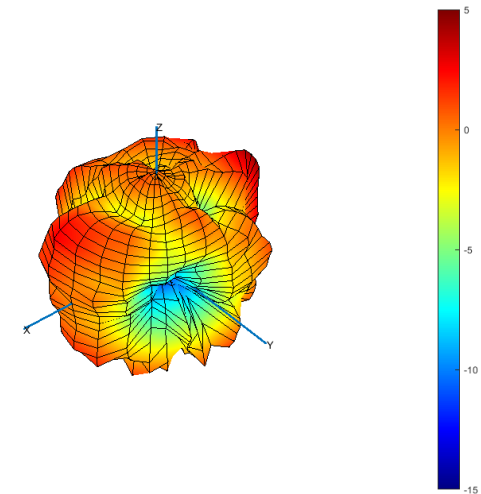
TTM



f=8000MHz Max: 3.49dBi Min:-16.33dBi Average: -1.4dB



f=8250MHz Max: 4.48dBi Min:-14.96dBi Average: -1.0dB



PLATFORM UWB+BLE CAN TRX

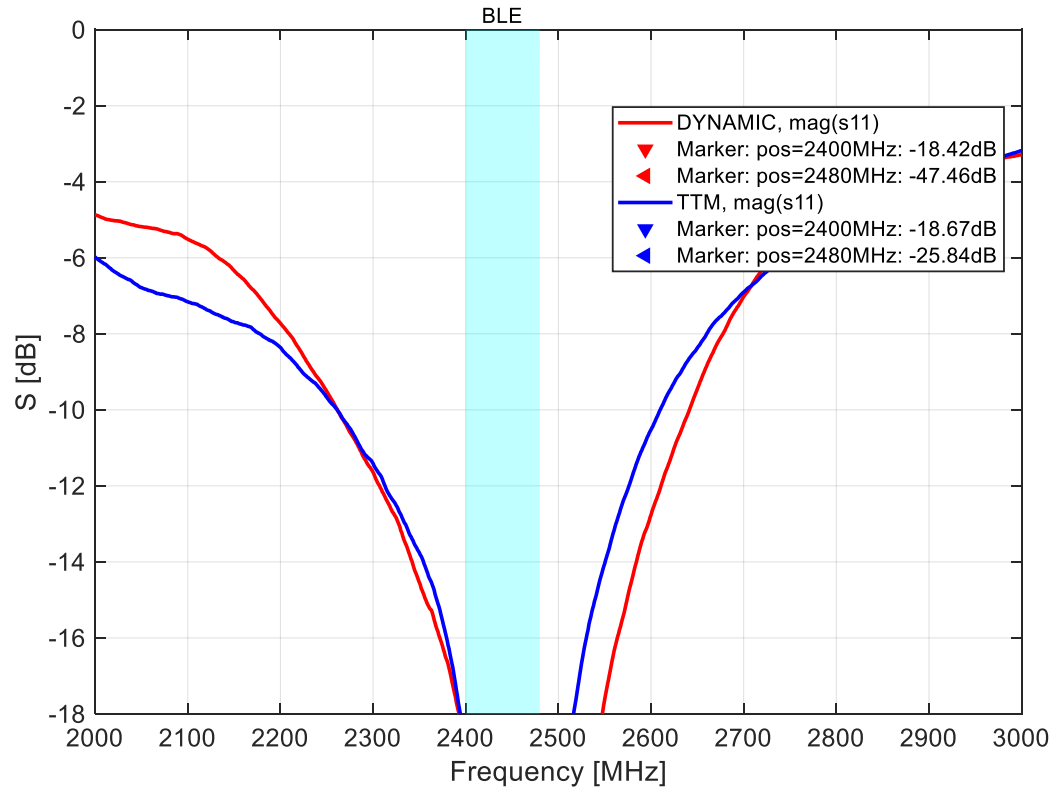
UWB Antennas – Average & Maximum Gain Values

G_{AVG}	UWB1				UWB2			
	Ch.5	Ch.6	Ch.8	Ch.9	Ch.5	Ch.6	Ch.8	Ch.9
DYNAMIC	-1.0dBi	-1.0dBi	-1.0dBi	-1.3dBi	-1.3dBi	-1.6dBi	-1.4dBi	-1.7dBi
TTM	-1.1dBi	-1.1dBi	-1.0dBi	-1.3dBi	-1.2dBi	-1.3dBi	-1.3dBi	-1.3dBi

G_{MAX}	UWB1				UWB2			
	Ch.5	Ch.6	Ch.8	Ch.9	Ch.5	Ch.6	Ch.8	Ch.9
DYNAMIC	6.0dBi	5.2dBi	5.0dBi	5.0dBi	3.8dBi	3.2dBi	4.1dBi	4.1dBi
TTM	6.8dBi	7.0dBi	6.5dBi	5.4dBi	3.9dBi	3.4dBi	5.0dBi	4.8dBi

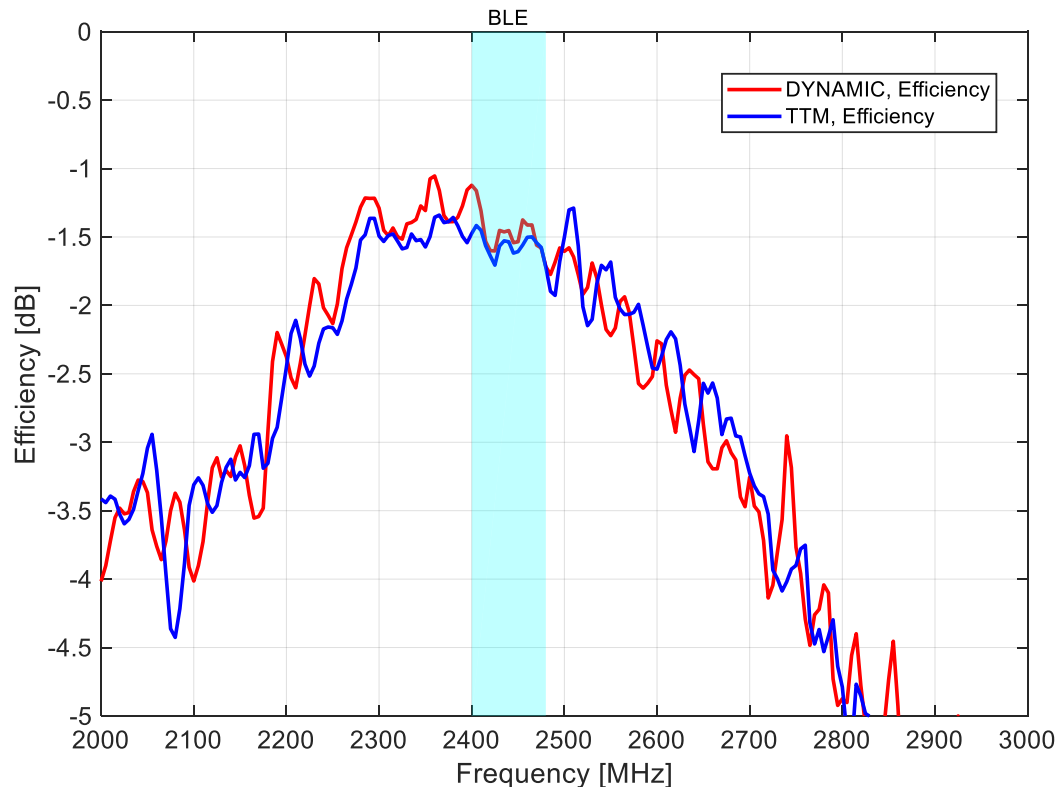
PLATFORM UWB+BLE CAN TRX

BLE Antenna – Return Loss



PLATFORM UWB+BLE CAN TRX

BLE Antenna – 3D Average Radiation Efficiency

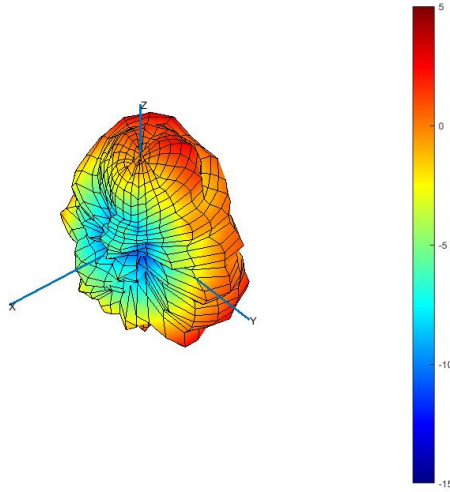


PLATFORM UWB+BLE CAN TRX

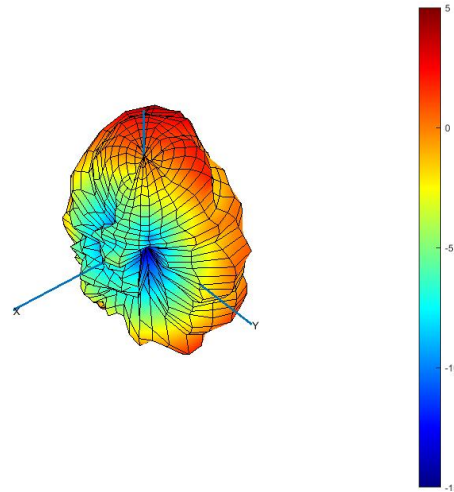
3D Radiation Patterns – BLE Antenna

f=2400MHz Max: 5.39dBi Min:-16.80dBi Average: -1.1dB

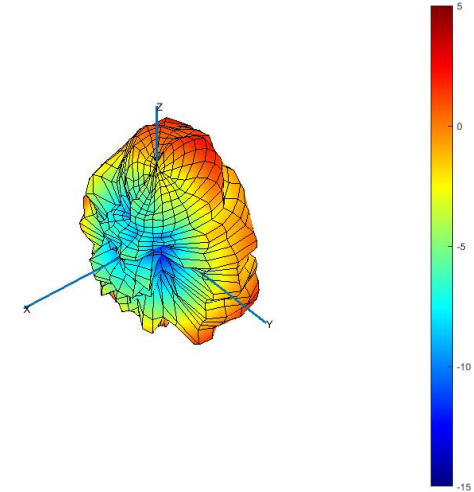
DYNAMIC



f=2440MHz Max: 4.13dBi Min:-16.66dBi Average: -1.5dB

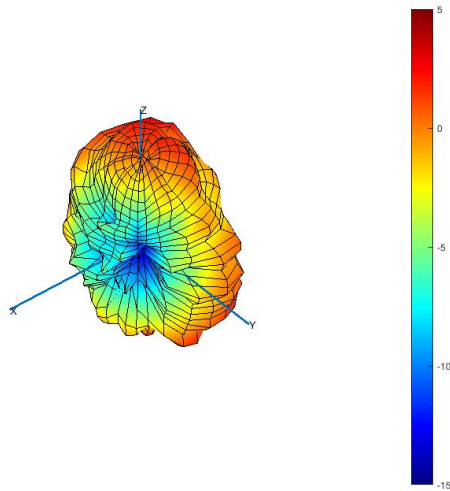


f=2480MHz Max: 5.04dBi Min:-16.36dBi Average: -1.7dB

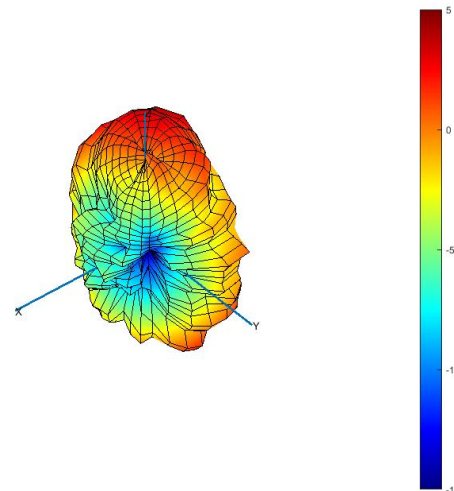


f=2400MHz Max: 4.95dBi Min:-16.66dBi Average: -1.5dB

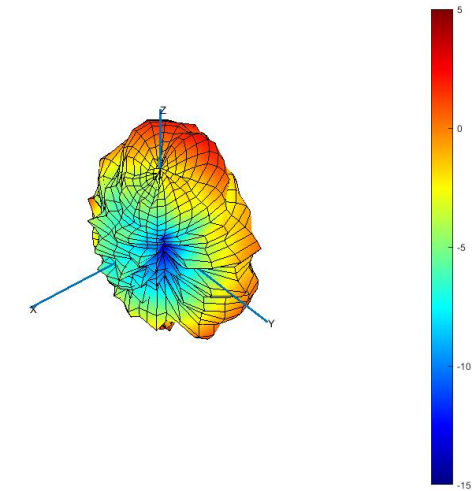
TTM



f=2440MHz Max: 4.23dBi Min:-18.23dBi Average: -1.5dB



f=2480MHz Max: 4.77dBi Min:-15.23dBi Average: -1.7dB



PLATFORM UWB+BLE CAN TRX

BLE Antenna – Average & Maximum Gain Values

BLE Antenna	3D Average Radiation Efficiency	G_{MAX}
DYNAMIC	-1.5dB	5.8dBi
TTM	-1.6dB	5.0dBi

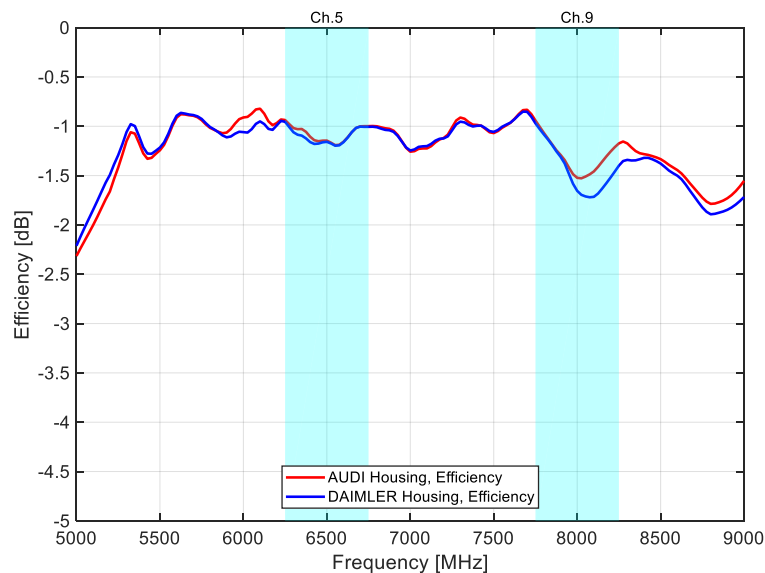
G_{MAX}	DYNAMIC	TTM
2402MHz	5.4dBi	4.9dBi
2426MHz	5.0dBi	4.4dBi
2480MHz	5.0dBi	4.8dBi

PLATFORM UWB+BLE CAN TRX

AUDI & DAIMLER Housing

PLATFORM UWB+BLE CAN TRX

AUDI & DAIMLER Housing – UWB1



UWB1

G_{AVG}	Ch.5	Ch.6	Ch.8	Ch.9
AUDI	-1.1dBi	-1.1dBi	-1.0dBi	-1.3dBi
DAIMLER	-1.1dBi	-1.1dBi	-1.0dBi	-1.4dBi

G_{MAX}	Ch.5	Ch.6	Ch.8	Ch.9
AUDI	7.2dBi	7.4dBi	7.0dBi	5.5dBi
DAIMLER	7.6dBi	7.2dBi	7.2dBi	5.7dBi