



MC345A/MC345B Antenna SPECIFICATION

Antenna Manufacturer Name	Universal Global Scientific Industrial Co., Ltd.
Address	No.141, Lane 351, Sec.1, Taiping Road, Tsaotuen, Nantou County 542007, Taiwan
ODM P/N:	46-500587-01
Test DATE	2024/10/31
DATASHEET REVISION	V1
Ant. Type (Monopole)	Ant-7
Ant. Type (PIFA)	Ant-6
Ant. Type (Loop)	NFC

Test Engineer: Star Chen



Description of Antenna

Antenna 6 Structure	
Frequency Range	1560-1610MHz, 2400-2500MHz, 5150-5850MHz and 5925-7125MHz
Impedance	50 ohm
Antenna type	PIFA
Manufacturing Process	LDS

Antenna Ant-6 Peak Gain

Brick SKU	
Frequency (MHz)	Peak gain (dBi)
2400	1.77
2450	1.81
2500	1.59
5150	0.99
5250	1.34
5350	1.06
5450	0.83
5550	0.89
5650	1.26
5750	1.31
5850	1.05
5925	1.02
6425	0.93
6525	0.81
6875	0.55
7125	0.57

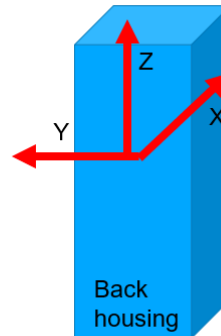
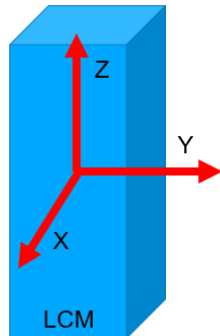
Antenna Ant-6 UHIS

Brick SKU	
Frequency (MHz)	UHIS
1560	-6.26
1570	-6.17
1580	-5.83
1590	-5.88
1600	-5.8
1610	-6.03

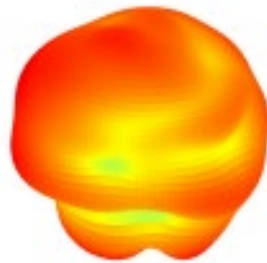


Antenna Radiation Patterns

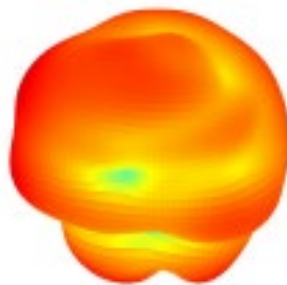
DUT Axis Reference



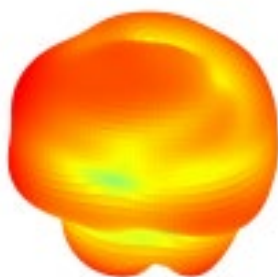
- 2400 MHz



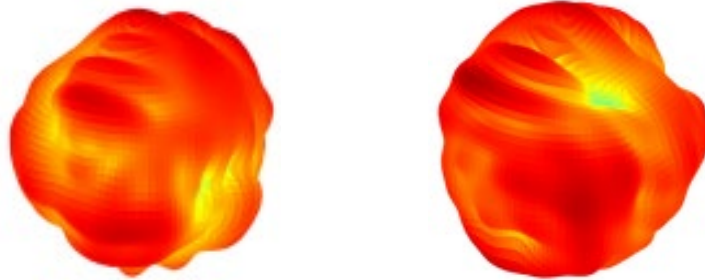
- 2450 MHz



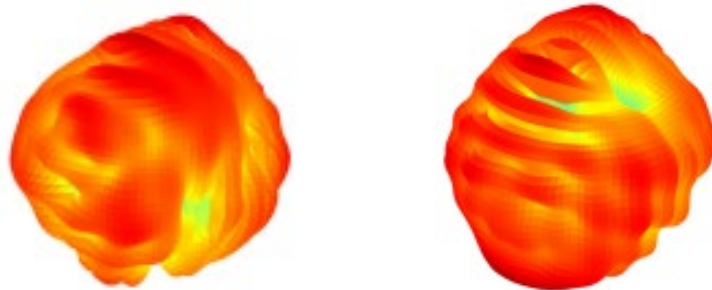
- 2500 MHz



- 5150 MHz



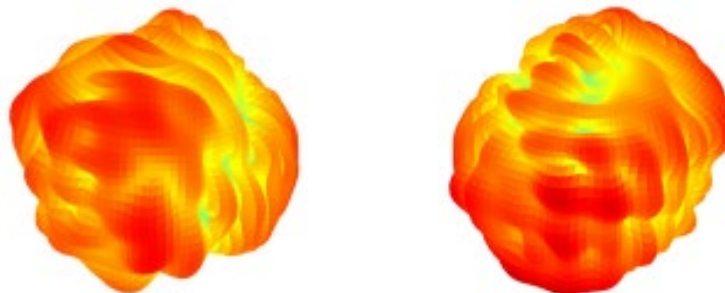
- 5450 MHz



- 5850 MHz

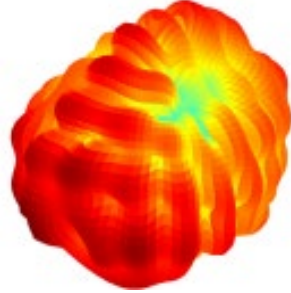
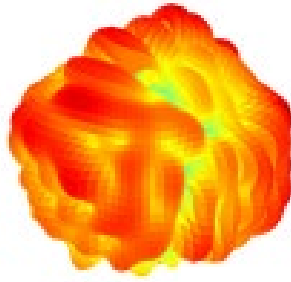


- 5925 MHz

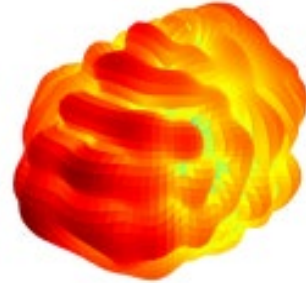
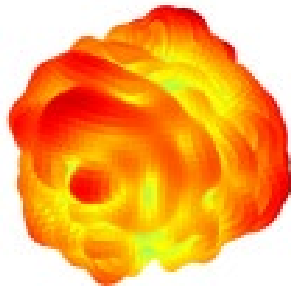




- 6525 MHz



- 7125 MHz



Antenna Ant-6 Peak Gain

Gun SKU	
Frequency (MHz)	Peak gain (dBi)
2400	1.68
2450	1.72
2500	1.43
5150	0.85
5250	1.19
5350	0.95
5450	0.74
5550	0.78
5650	1.09
5750	1.13
5850	0.88
5925	0.85
6425	0.81
6525	0.71
6875	0.48
7125	0.47

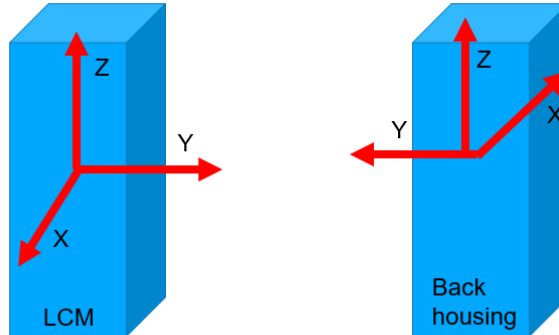
Antenna Ant-6 UHIS

Gun SKU	
Frequency (MHz)	UHIS
1560	-6.15
1570	-6.03
1580	-5.85
1590	-5.91
1600	-5.67
1610	-5.97

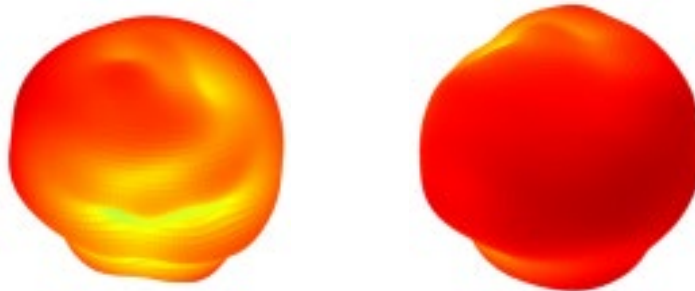


Antenna Radiation Patterns

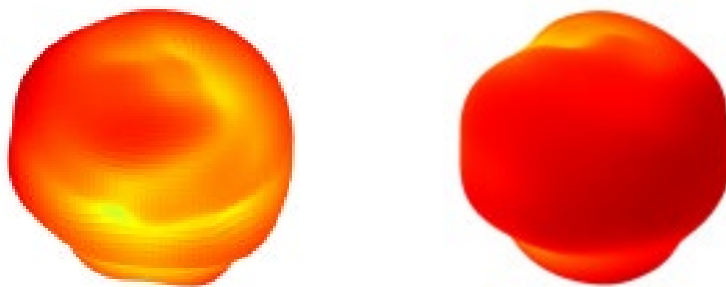
DUT Axis Reference



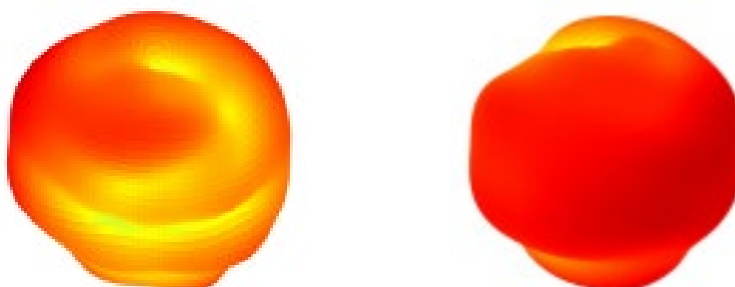
- 2400 MHz



- 2450 MHz



- 2500 MHz

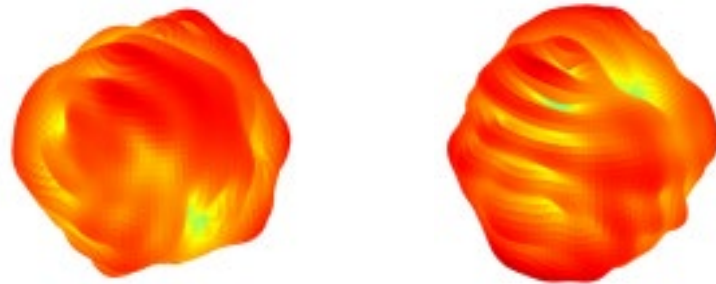




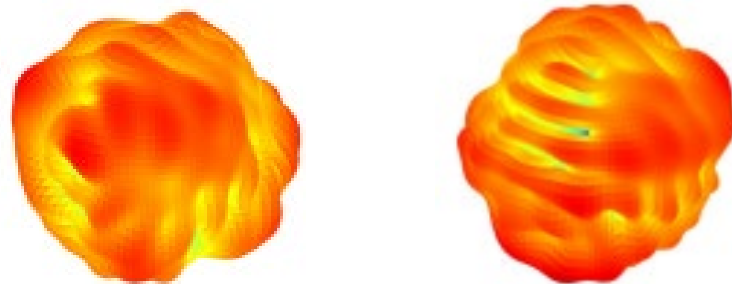
- 5150 MHz



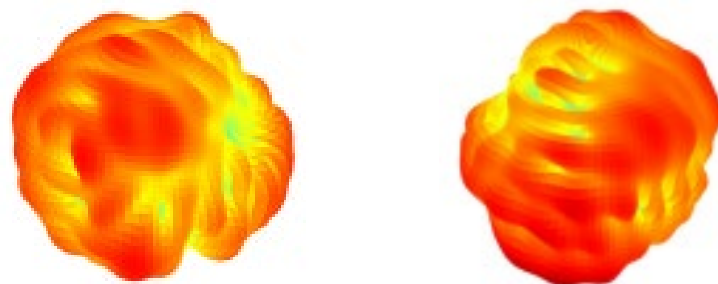
- 5450 MHz



- 5850 MHz



- 5925 MHz

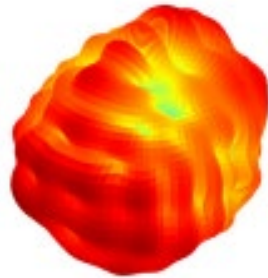
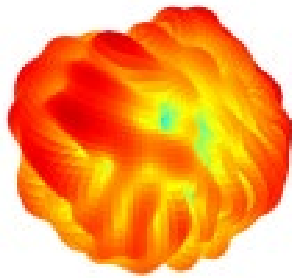




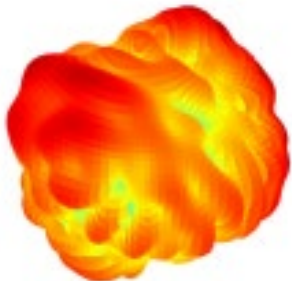
ZEBRA

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- 6525 MHz



- 7125 MHz





Antenna 7 Structure	
Frequency Range	1160-1190MHz, 2400-2500MHz, 5150-5850MHz and 5925-7125MHz
Impedance	50 ohm
Antenna type	Monopole
Manufacturing Process	LDS

Antenna Ant-7 Peak Gain

Brick SKU	
Frequency (MHz)	Peak gain (dBi)
2400	0.50
2450	0.47
2500	-0.17
5150	0.85
5250	1.02
5350	0.68
5450	0.74
5550	0.61
5650	0.64
5750	0.83
5850	0.98
5925	0.91
6425	1.23
6525	1.19
6875	0.64
7125	0.88

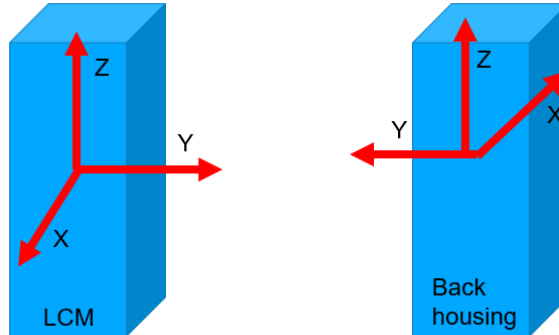
Antenna Ant-7 UHIS

Brick SKU	
Frequency (MHz)	UHIS
1160	-8.04
1170	-7.83
1180	-7.94
1190	-8.03

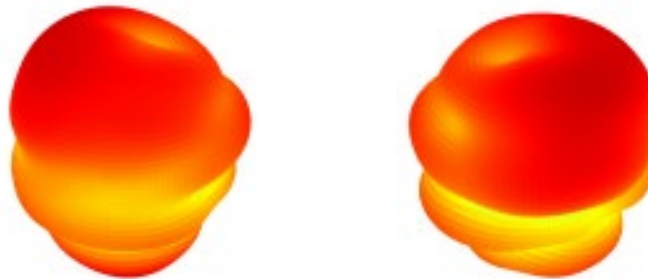


Antenna Radiation Patterns

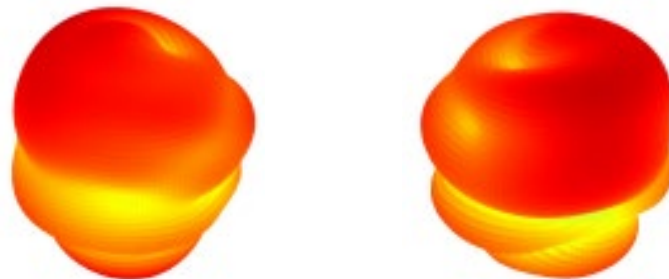
DUT Axis Reference



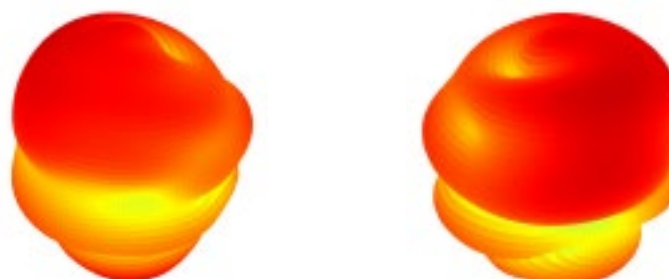
- 2400 MHz



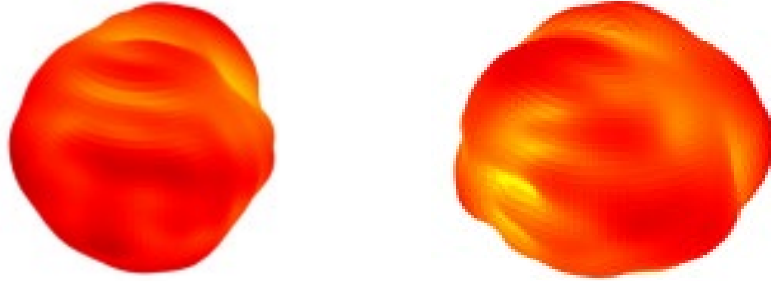
- 2450 MHz



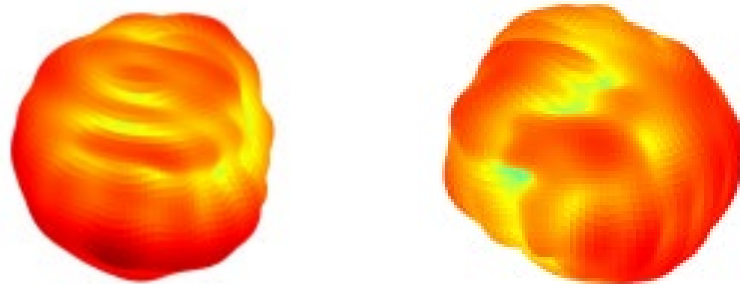
- 2500 MHz



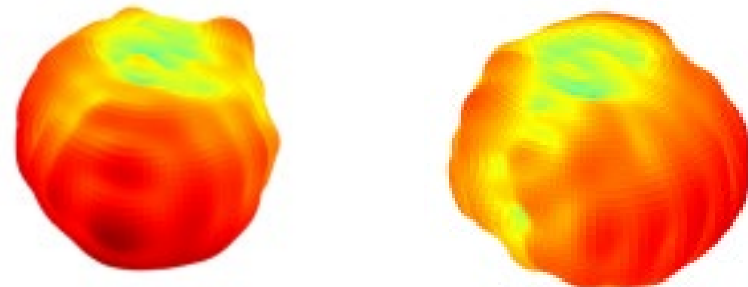
- 5150 MHz



- 5450 MHz



- 5850 MHz

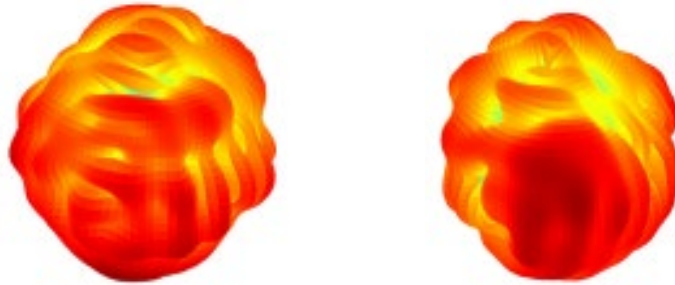


- 5925 MHz





- 6525 MHz



- 7125 MHz



Antenna Ant-7 Peak Gain

Gun SKU	
Frequency (MHz)	Peak gain (dBi)
2400	0.46
2450	0.44
2500	-0.25
5150	0.77
5250	0.96
5350	0.60
5450	0.70
5550	0.59
5650	0.57
5750	0.74
5850	0.91
5925	0.86
6425	1.18
6525	1.15
6875	0.59
7125	0.85

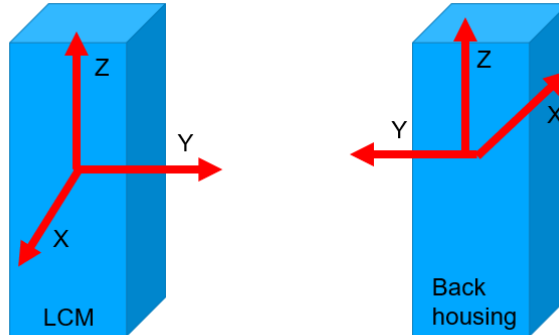
Antenna Ant-7 UHIS

Gun SKU	
Frequency (MHz)	UHIS
1160	-7.96
1170	-7.85
1180	-7.98
1190	-8

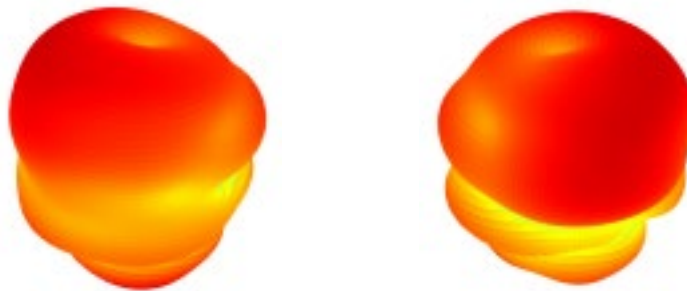


Antenna Radiation Patterns

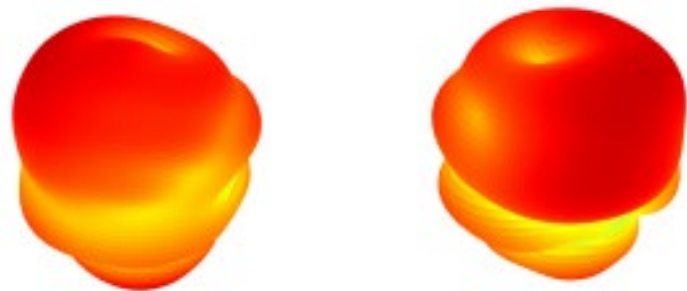
DUT Axis Reference



- 2400 MHz



- 2450 MHz



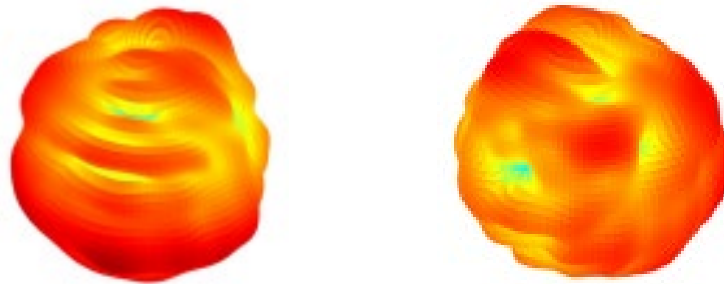
- 2500 MHz



- 5150 MHz



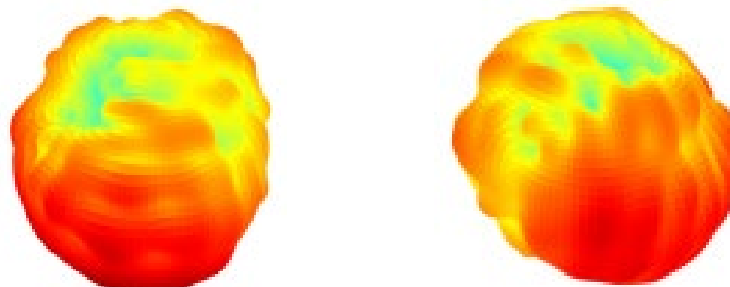
- 5450 MHz



- 5850 MHz



- 5925 MHz

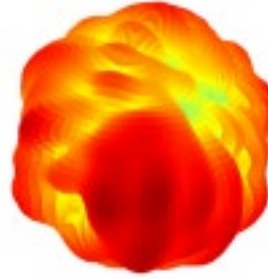




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- 6525 MHz



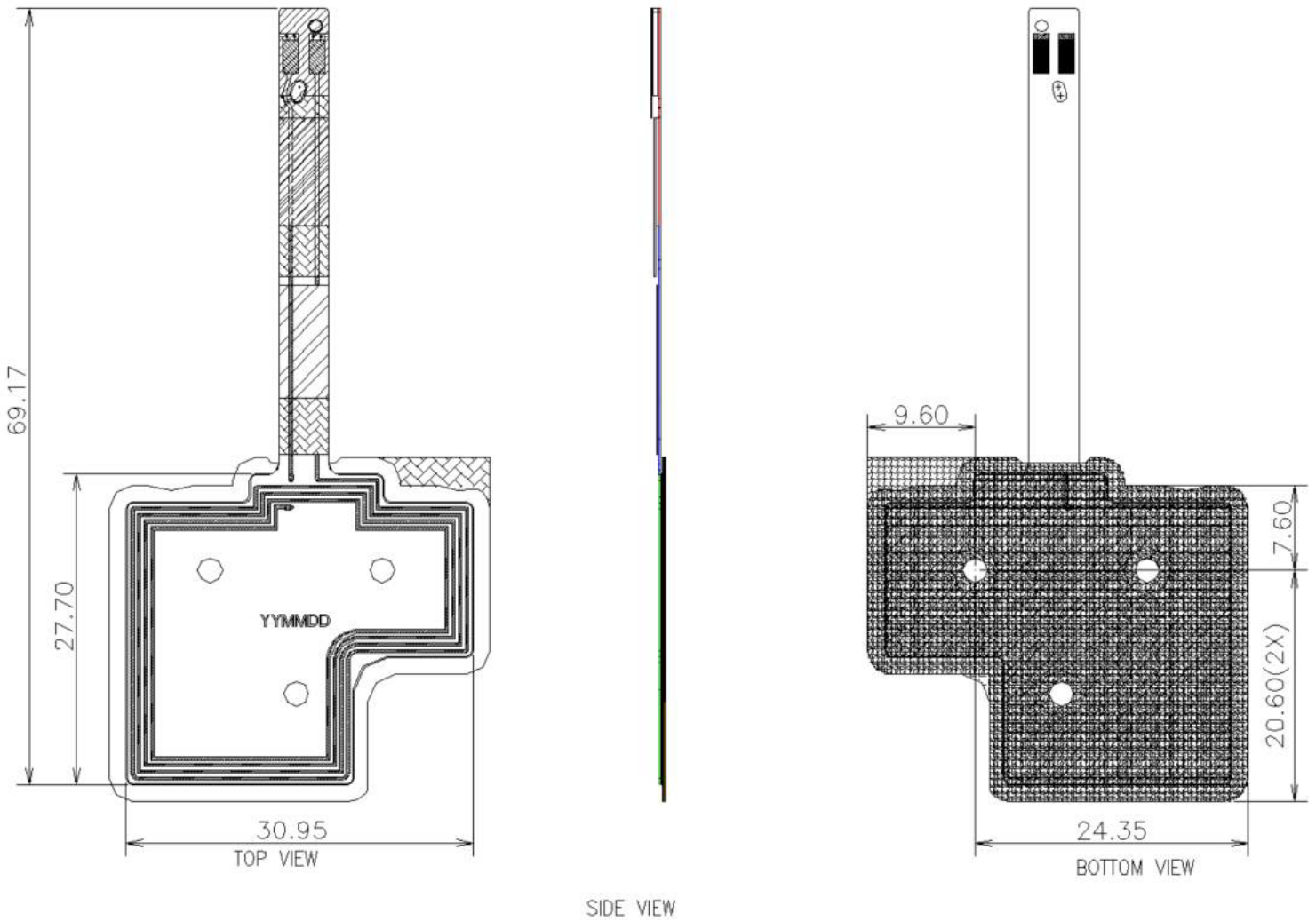
- 7125 MHz





NFC Antenna

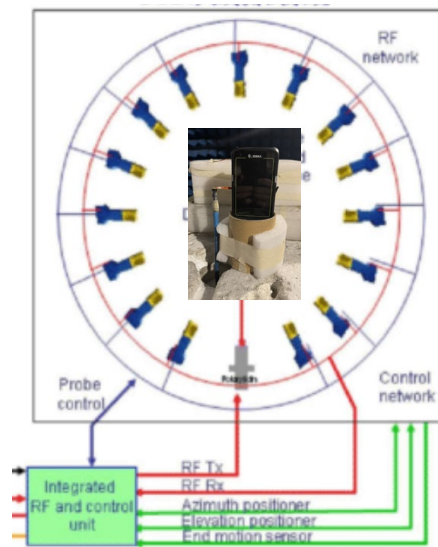
FPCB Dimensions



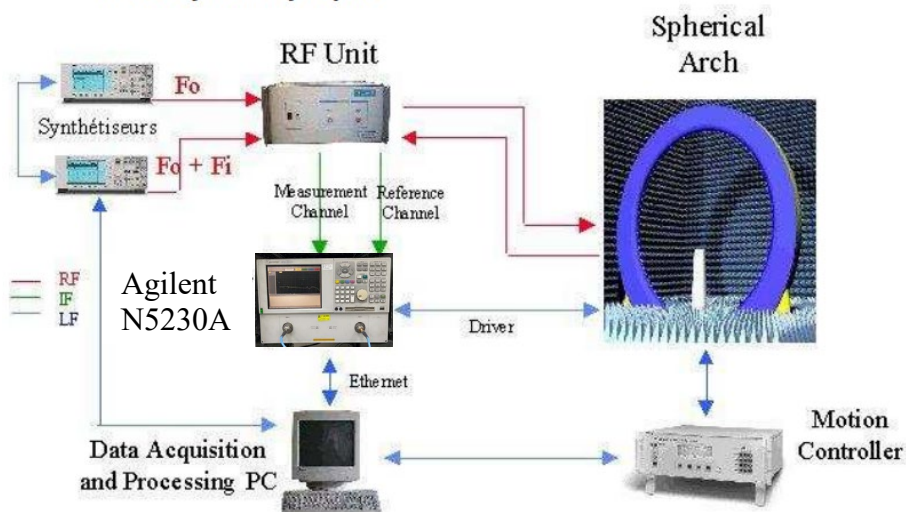
This test procedure primarily adheres to Section 3 of the CTIA Test Plan, which outlines the scope of measurement. The total range loss—comprising air loss, receiving antenna loss, and cable loss—has been pre-calibrated by comparing it with a calibrated antenna (Wide band standard gain horn). While conducting the radiated test on the Device Under Test (DUT), the total range loss has been taken into account for final results.

The Device Under Test (DUT) is positioned on fixture constructed from styrofoam turntable. One of the DUT's antennas is connected to the network analyzer, while the input port of the other antenna is properly terminated.

A three-dimensional characterization of the antenna performance of the DUT is pieced together by analyzing the data from the spatially distributed measurements. Data points taken every 3 degrees in the theta and in the phi axes are deemed sufficient to fully characterize the DUT's antenna radiated gain.



7. SG system synoptic





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Open WaveStudio23.3test software

1. Choose test devices VNA

2. Setup test frequency

3. Push start for testing

The screenshot shows the WaveStudio 23.4 interface. The 'System Set-Up' window is open, showing 'Network 1 (400 MHz, 10 GHz) (23 probes)'. The 'Start' button is highlighted with a red box. The 'Frequency Distribution' table is visible, showing a list of frequencies from 2400 to 2500 MHz.

Add test item for export efficiency

1. Choose test item for export efficiency

2. Push start for export

The screenshot shows the WaveStudio 23.4 interface. The 'Test Process' dropdown menu is open, showing 'Efficiency' selected. The 'Start' button is highlighted with a red box.

Result will show efficiency number

Result will show efficiency number

The screenshot shows the WaveStudio 23.4 interface displaying test results. A table titled 'Antenna Efficiency Frequency out' is highlighted with a red box, showing efficiency values for various frequencies. The table data is as follows:

Frequency	Efficiency
3400.00 MHz	-1.48 dB
3402.00 MHz	-1.47 dB
3404.00 MHz	-1.50 dB
3410.00 MHz	-1.71 dB
3420.00 MHz	-1.59 dB
3430.00 MHz	-1.62 dB
3440.00 MHz	-1.66 dB
3441.00 MHz	-1.62 dB
3442.00 MHz	-1.58 dB
3443.00 MHz	-1.58 dB
3444.00 MHz	-1.59 dB
3445.00 MHz	-1.58 dB
3446.00 MHz	-1.58 dB
3447.00 MHz	-1.58 dB
3448.00 MHz	-1.58 dB
3449.00 MHz	-1.58 dB
3450.00 MHz	-1.58 dB

The interface also shows several plots, including a Smith chart and a polar plot, and a 'System Set-Up' window on the right.