

產 品 規 格 承 認 書

SPECIFICATION FOR APPROVAL

Customer : Sysgration

Vendor code : 100947(臺鑫)

MACHINERY: Swallowtail

PART NAME : WWAN AUX+WIFI AUX

Customer P/N : 354-0000511

Manufacturer P/N : TZ29770 Date : 250331

CUSTOMER			
ACCEPTED BY :			
核 准	審 核	承 認 者	承 認 單 位
☐ APPROVED ☐ REJECTED			

審 核 by	作 成 by	RF by
CHEN/YY	KEN	Charles

Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

Revisions

REV.	Description	Rev.Page	Date	Prepared by	Approved by
V01	Release for MP	all	250212	KEN	CHEN
V02	更新圖面公差	P5	250305	KEN	CHEN
V03	品名原WIFI MAIN改為WIFI AUX	all	250327	KEN	CHEN
V04	Peak EIRP (dBm)” to “Gain (dBi)	P93	250331	KEN	CHEN

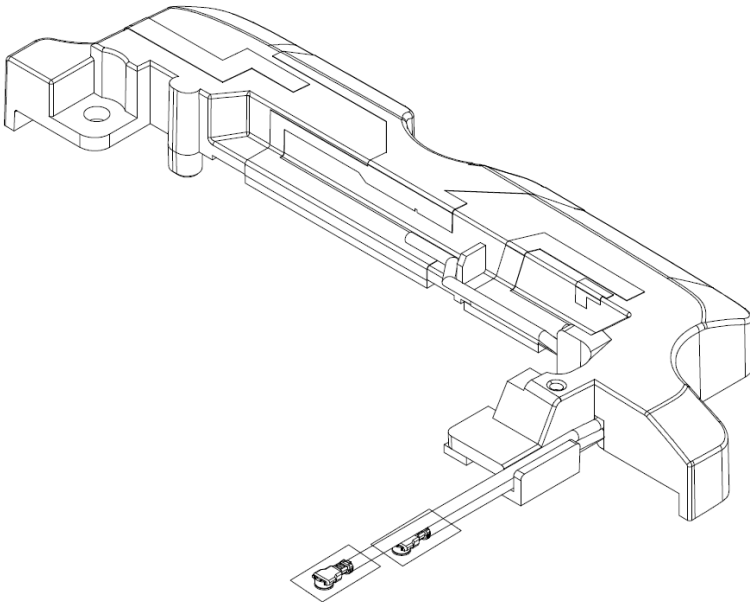
Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

Features:

- WWAN+WIFI Antenna
- LDS
- 1.13 cable LL
- RoHS



Applications:

- IOT

All dimensions are in mm / inches

Series: Swallowtail**Customer P/N: 354-0000511****Manufacturer P/N: TZ29770****ELECTRICAL SPECIFICATIONS**

Antenna Type	PIFA
Frequency (WWAN_AUX)	698~960MHz
Frequency (WWAN_AUX)	1805~2690MHz
Frequency (WWAN_AUX)	3300~3800MHz
Frequency (WIFI_AUX)	2.4~2.5GHz / 5.15~5.85GHz

MECHANICAL SPECIFICATIONS

Overall Length	See table, P5
Antenna Color / Material	See table, P5
Connector type	See table, P5
Cable type	See table, P5
Cable length	See table, P5
Adhesive tape	See table, P5

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40 ~ +85°C
Storage Temperature	-40 ~ +85°C
RoHS Compliant	Yes

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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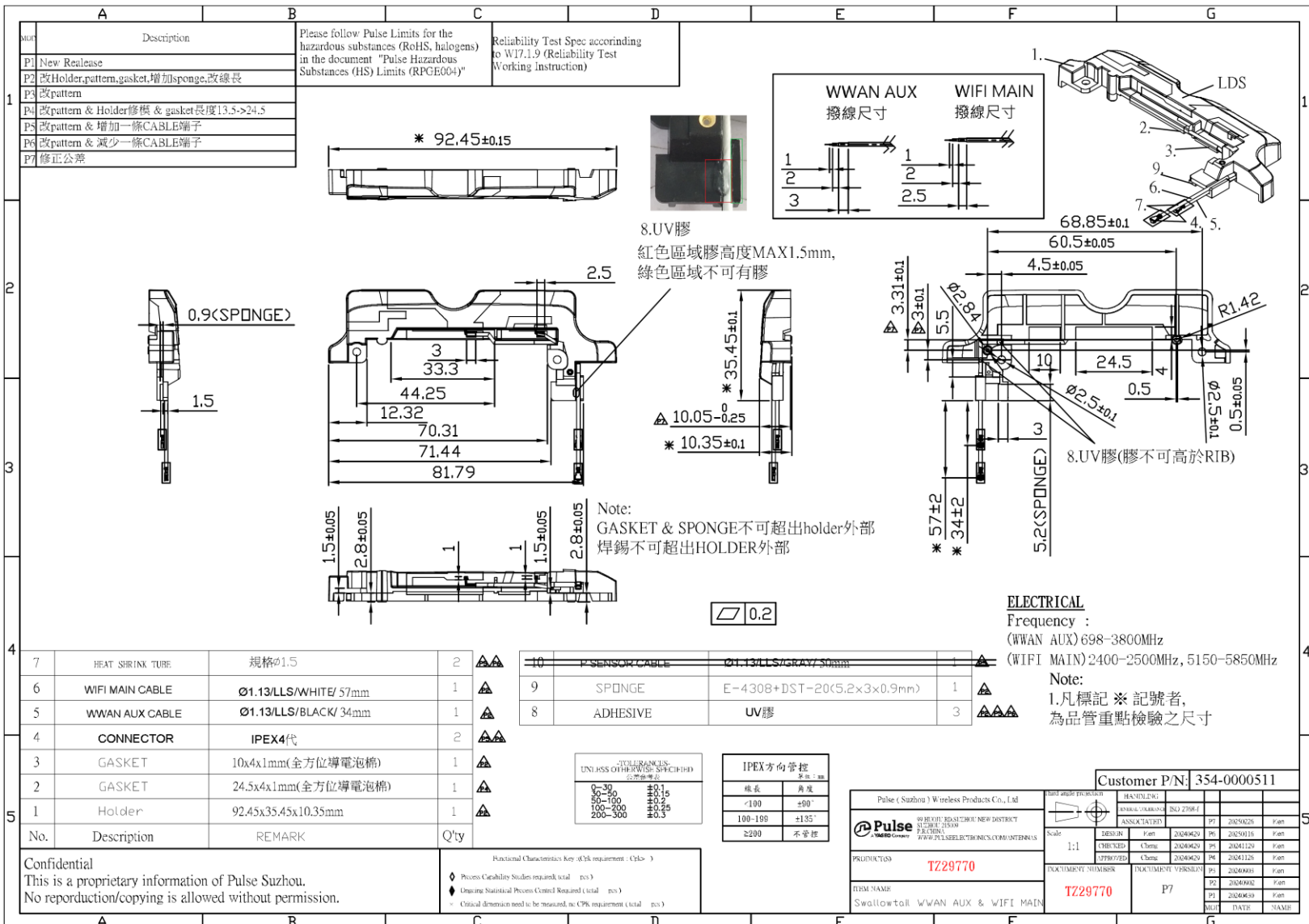
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

MECHANICAL DRAWING



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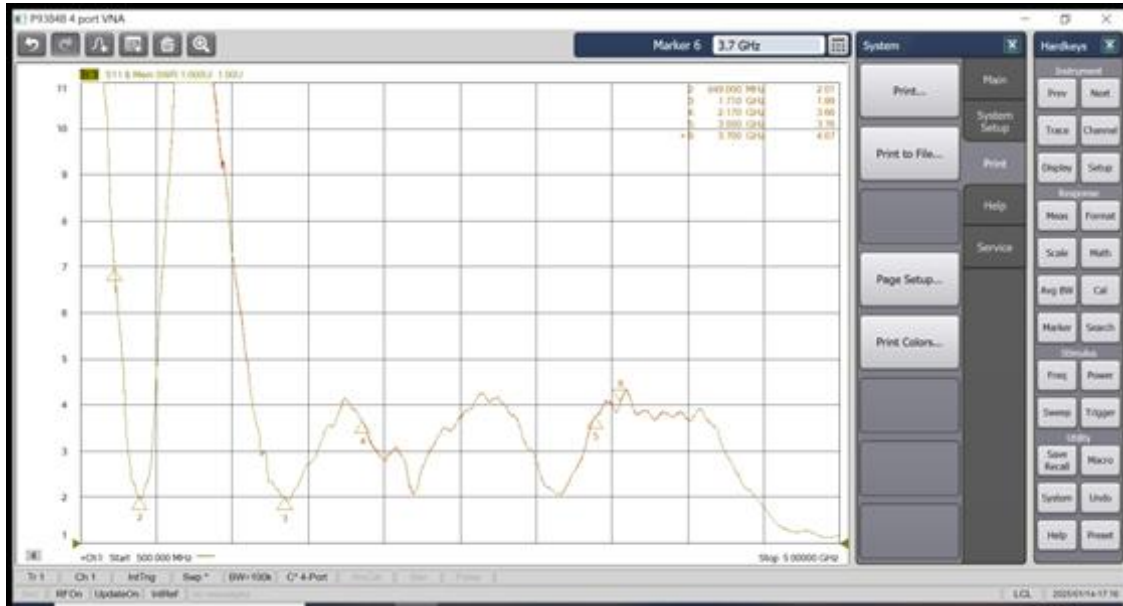
Series: Swallowtail

Customer P/N: 354-0000511

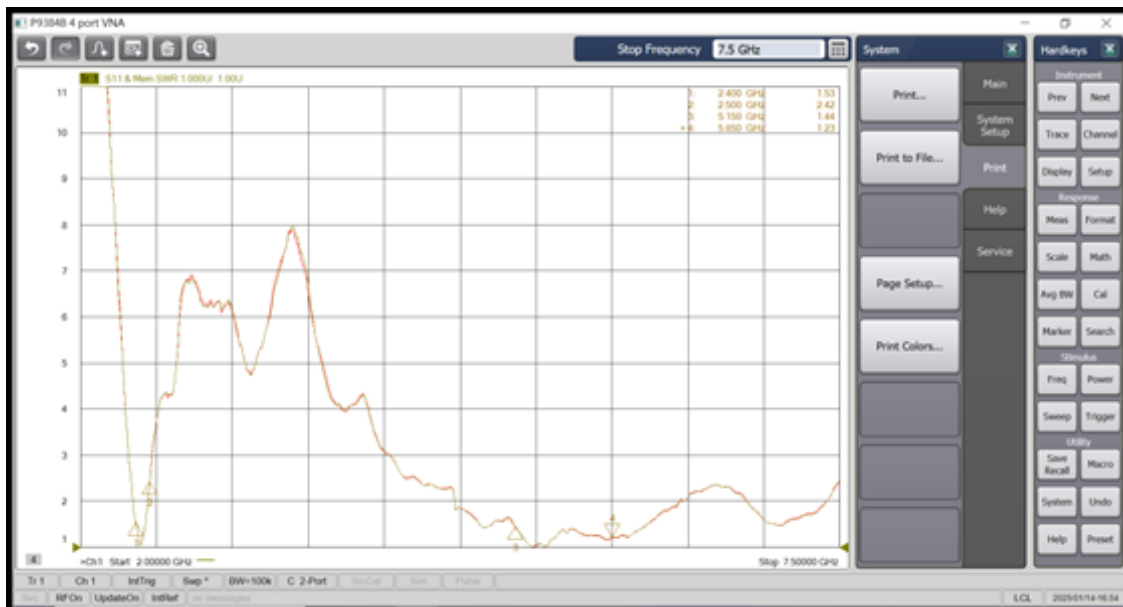
Manufacturer P/N: TZ29770

Electrical test_VSWR

WWAN_AUX



WIFI_AUX



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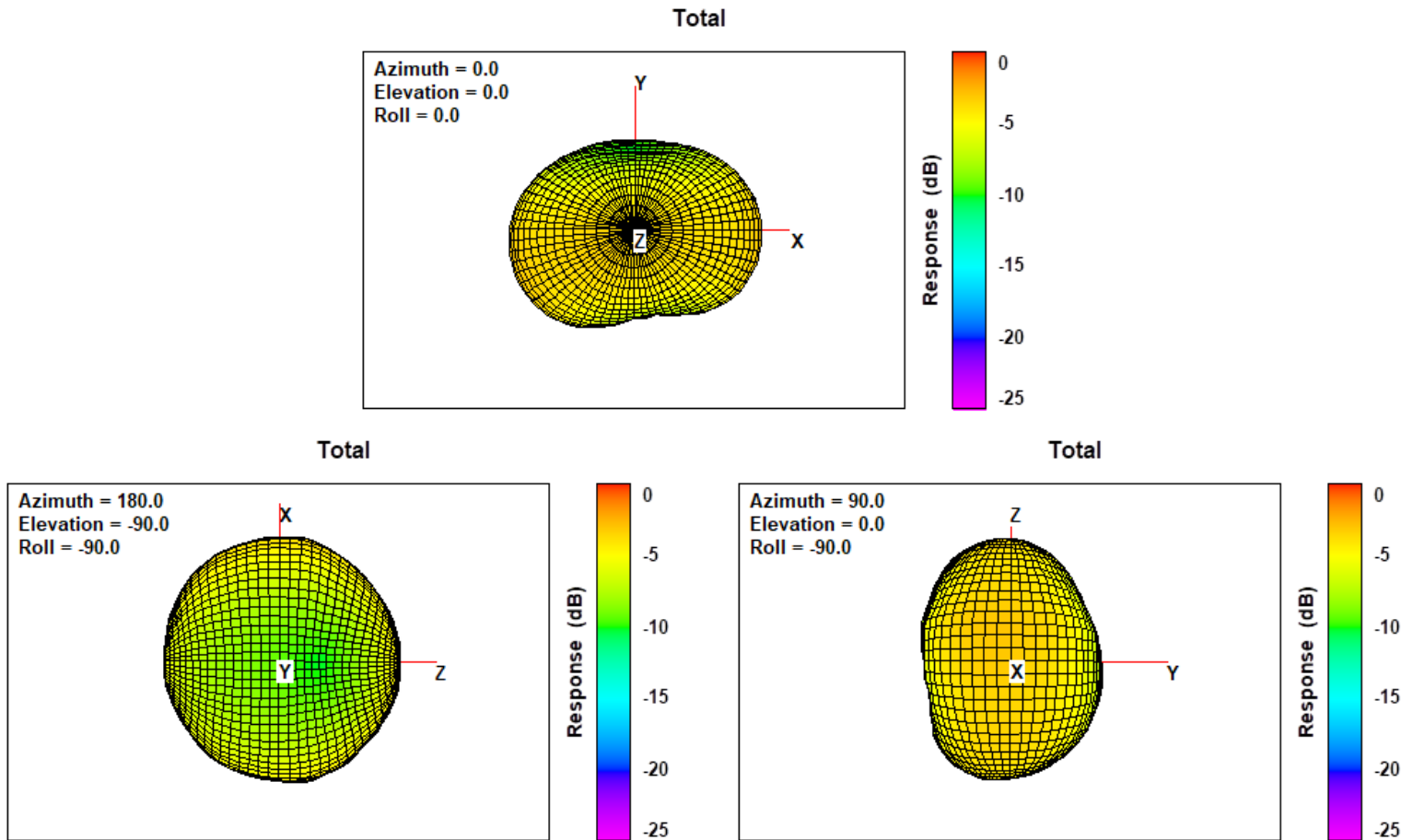
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_698MHz [WWAN AUX]



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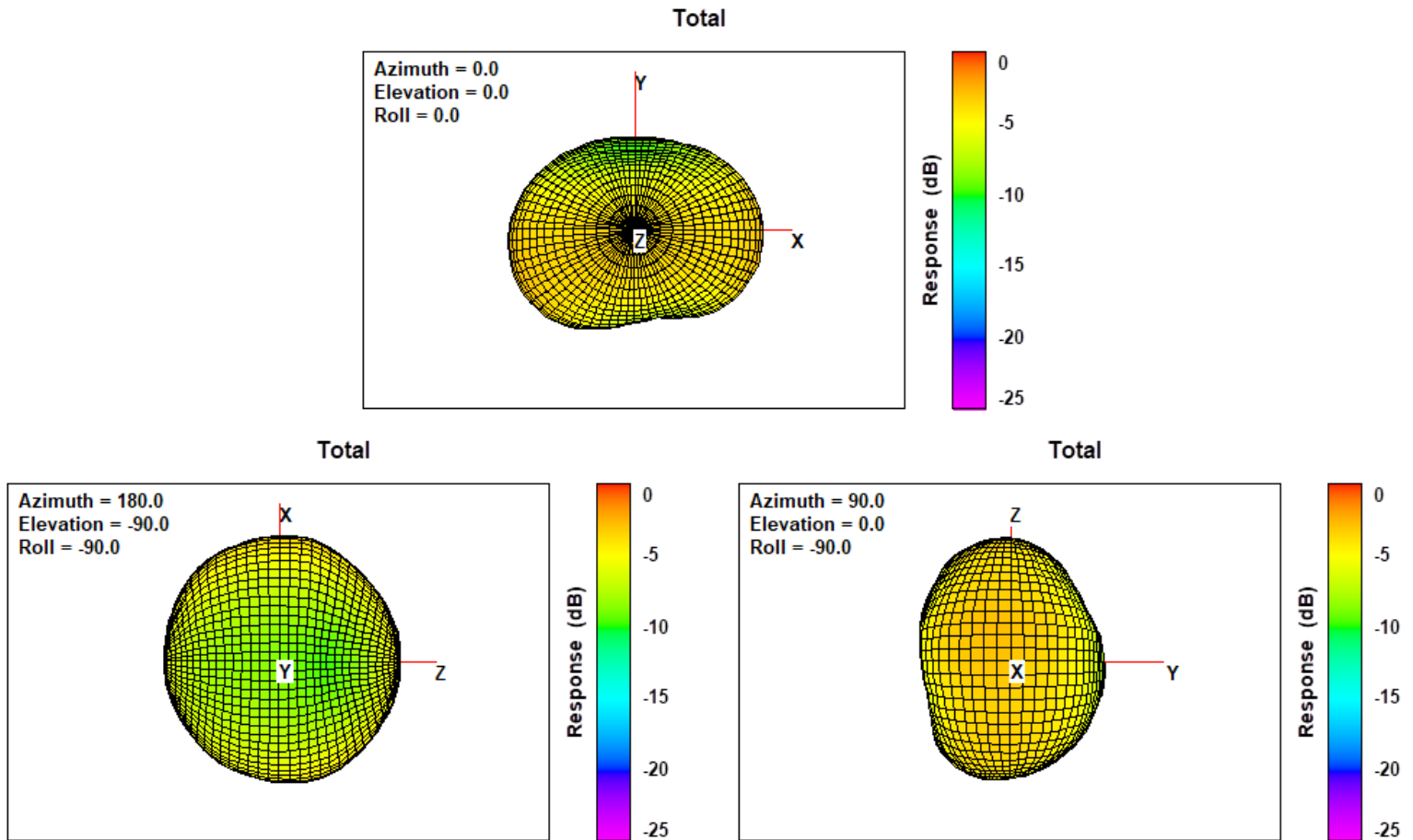
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_708MHz [WWAN AUX]



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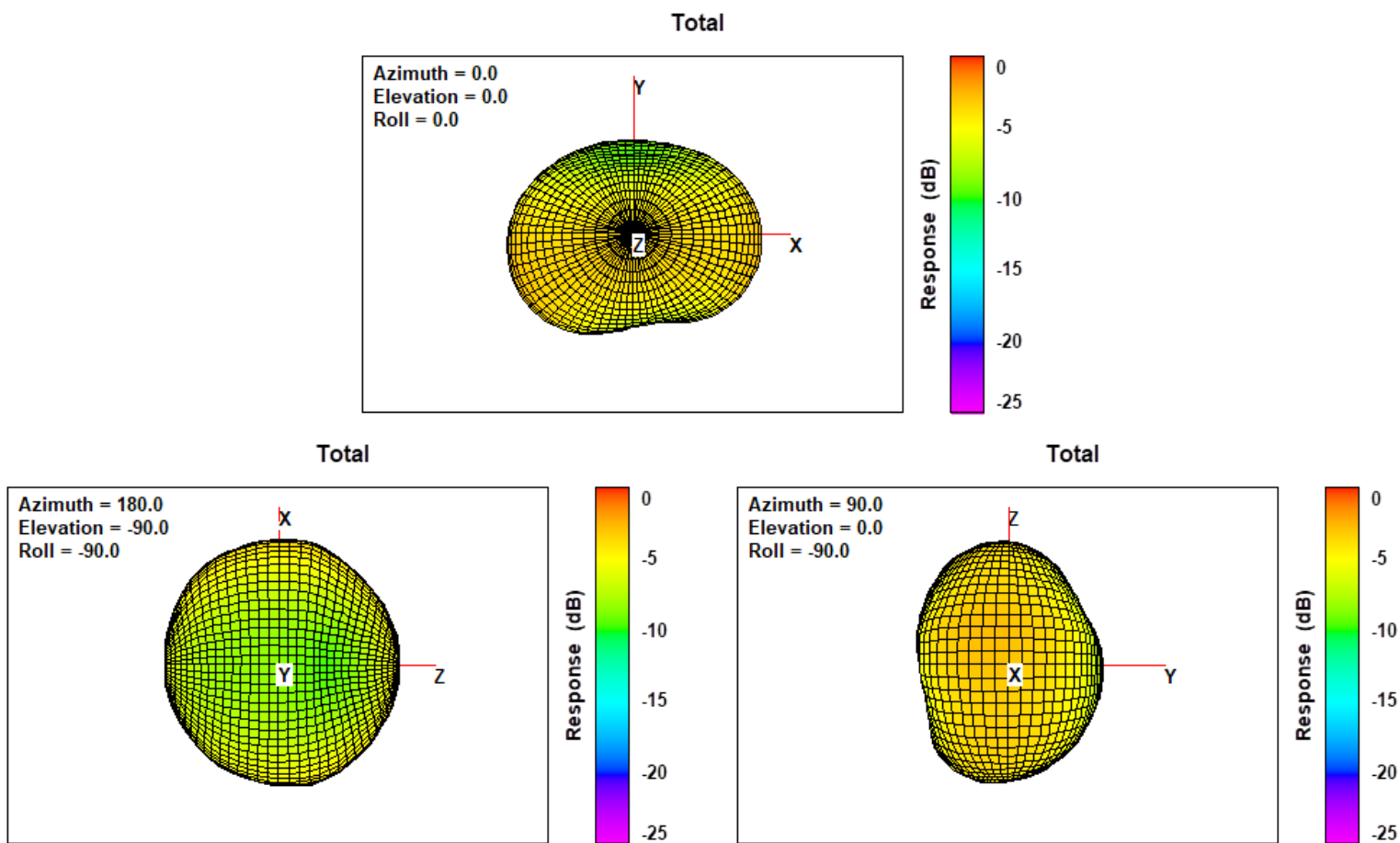
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_710MHz [WWAN AUX]



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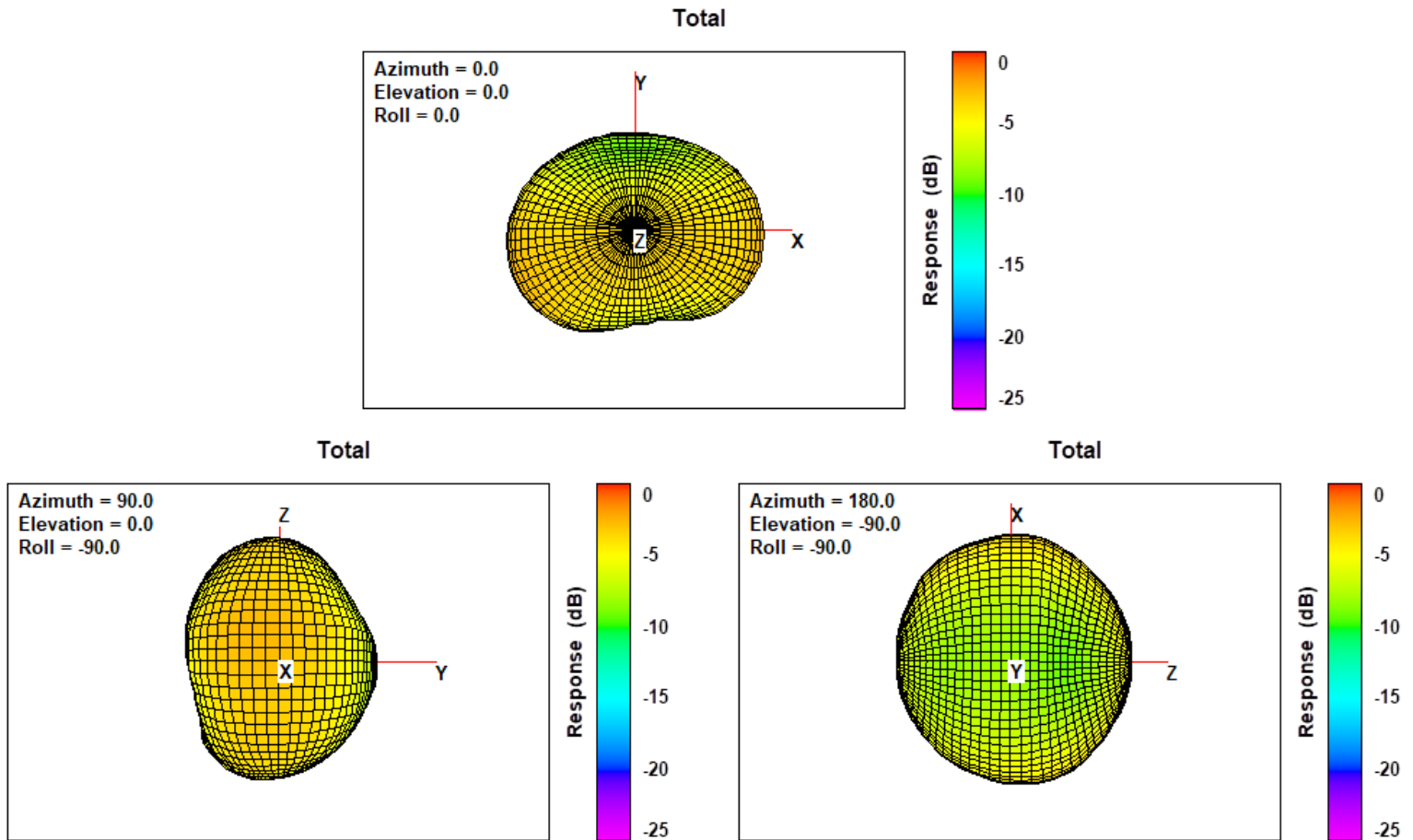
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_717MHz [WWAN AUX]



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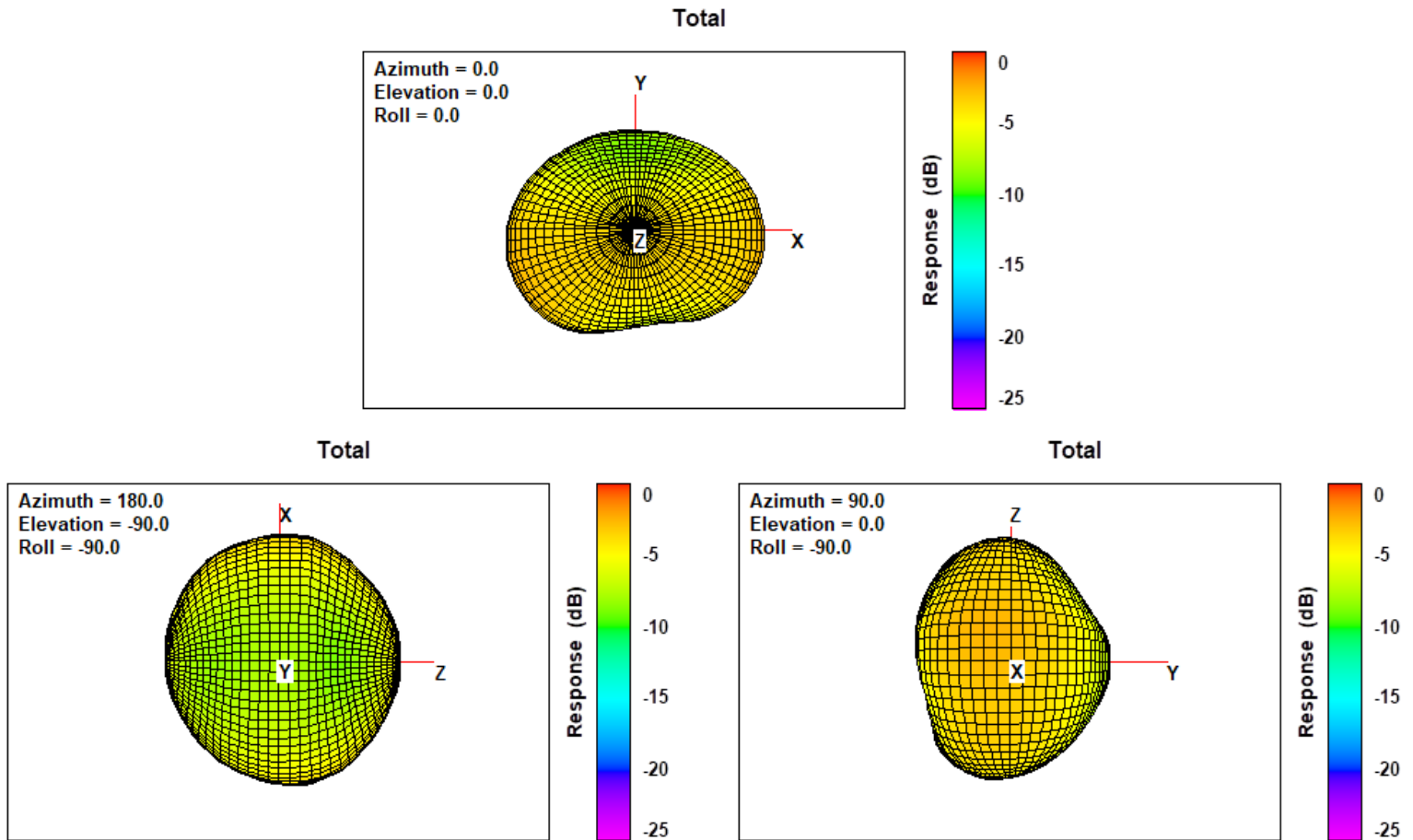
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_723MHz [WWAN AUX]



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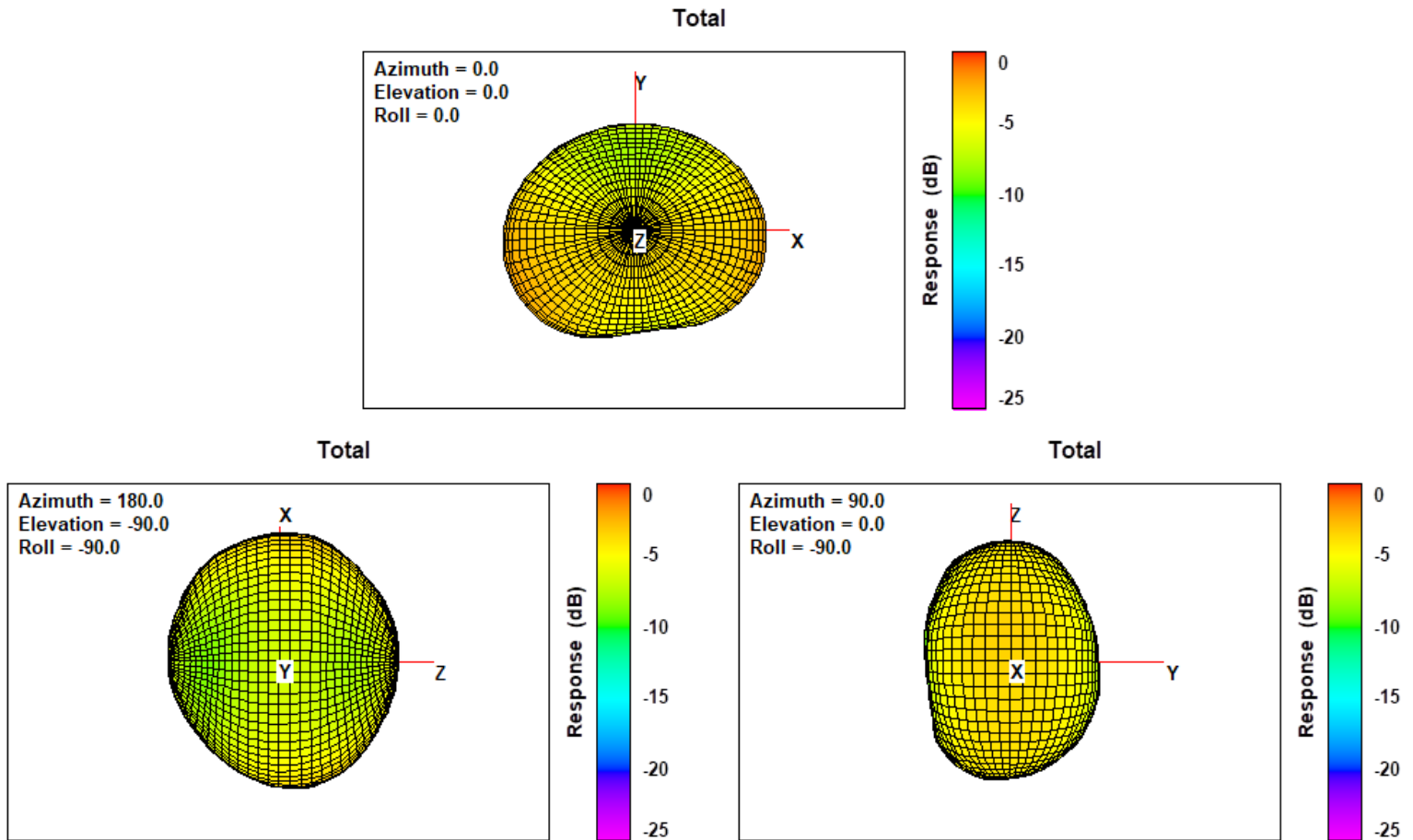
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_738MHz [WWAN AUX]



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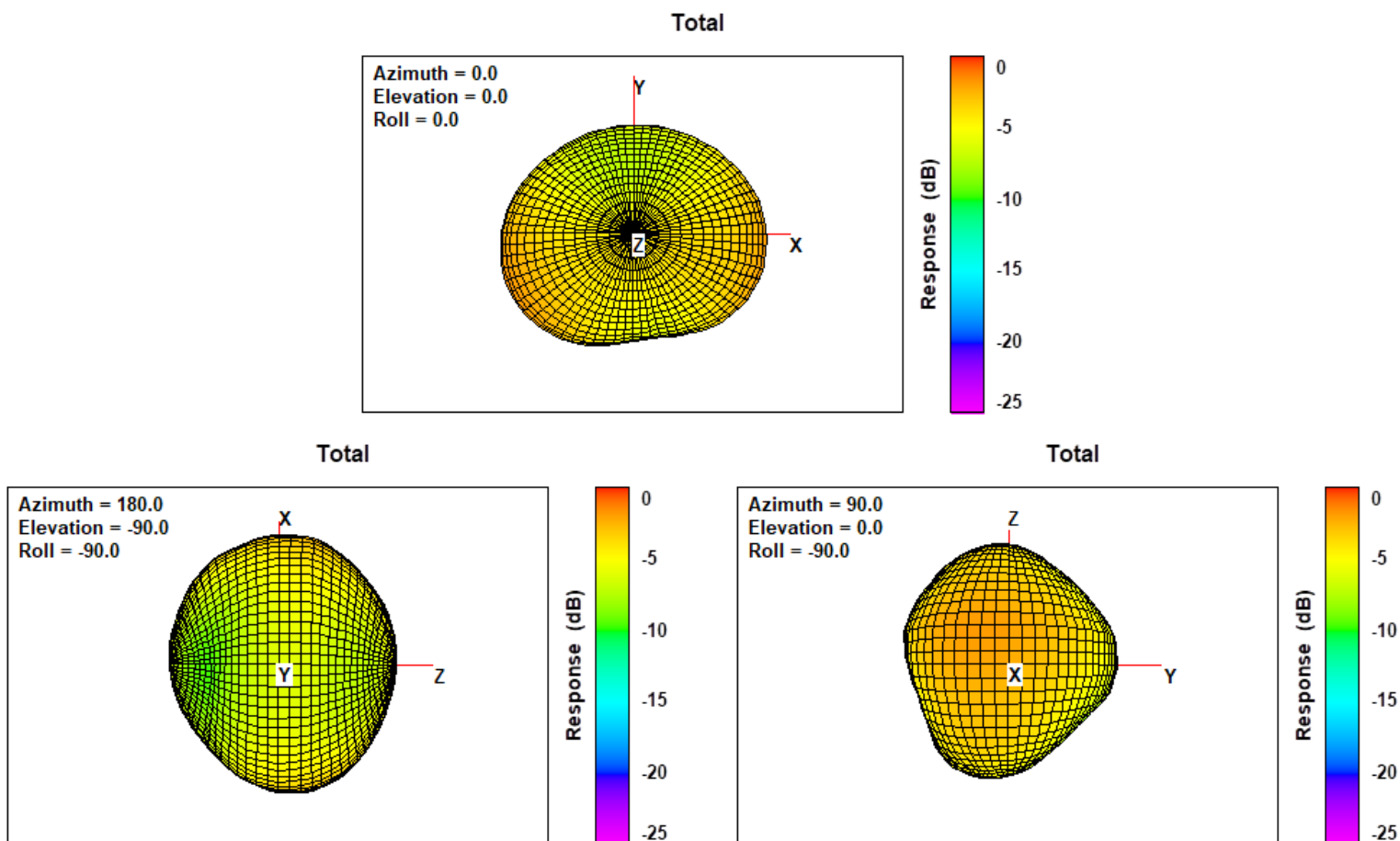
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_746MHz [WWAN AUX]



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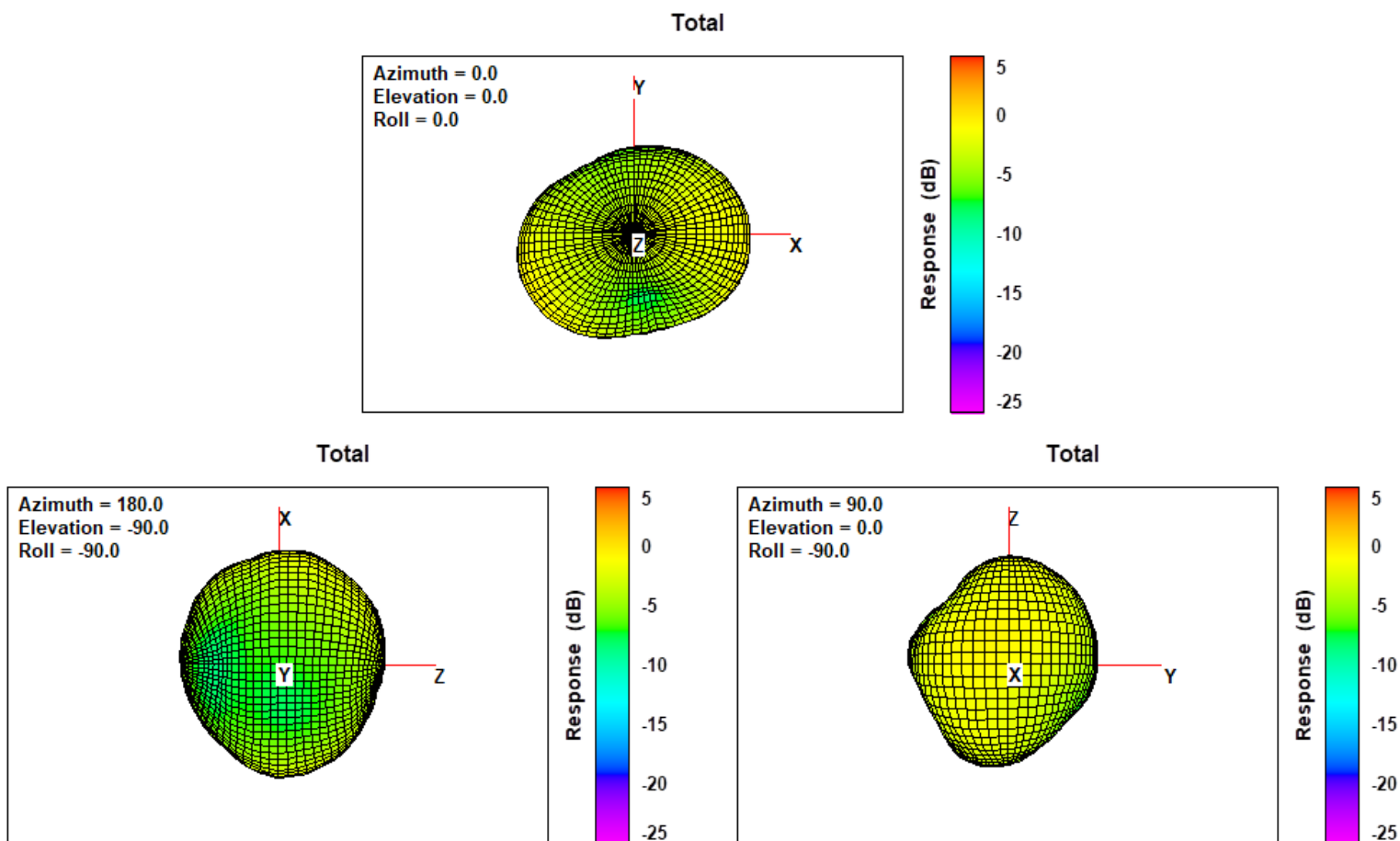
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_777MHz [WWAN AUX]



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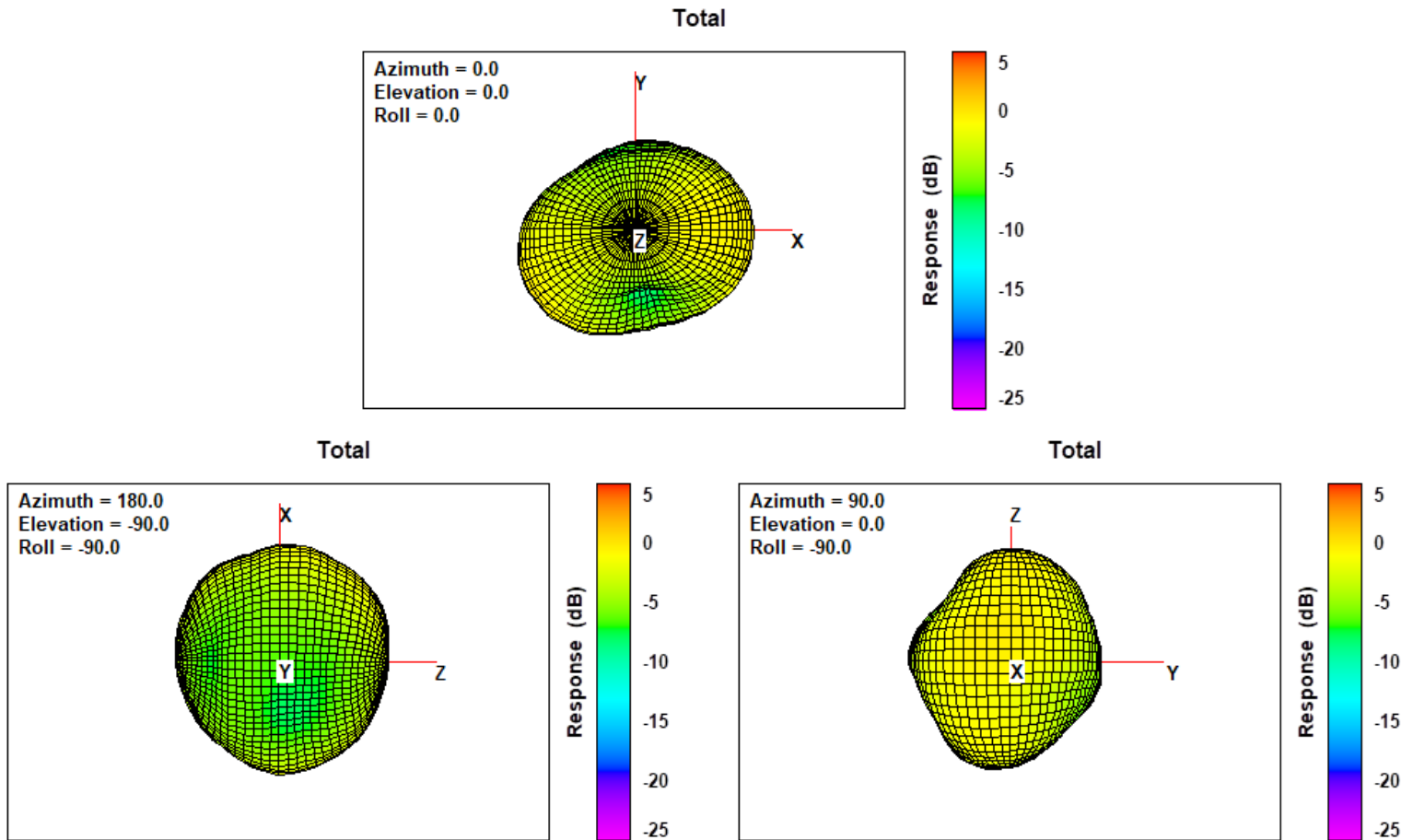
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_787MHz [WWAN AUX]



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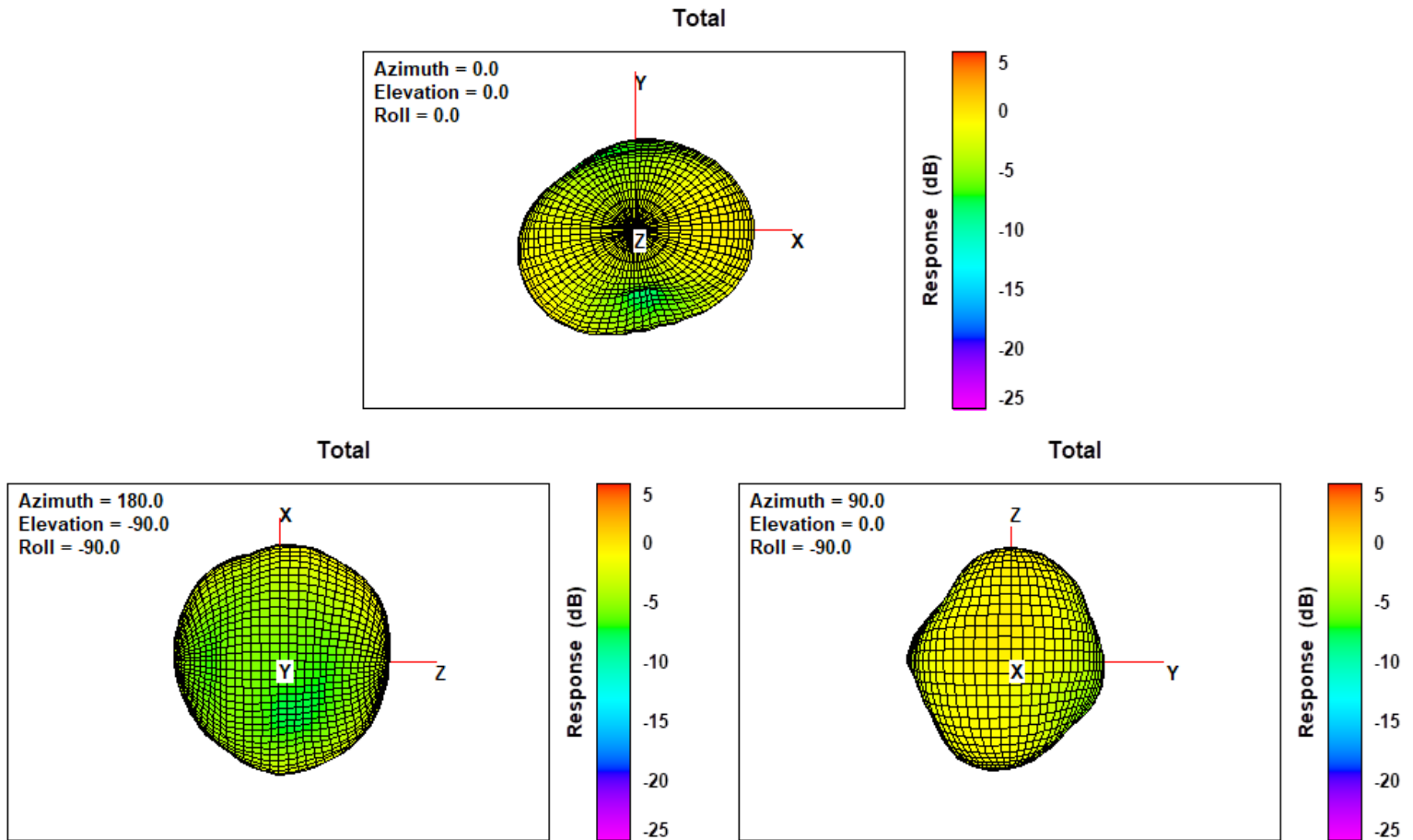
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_791MHz [WWAN AUX]



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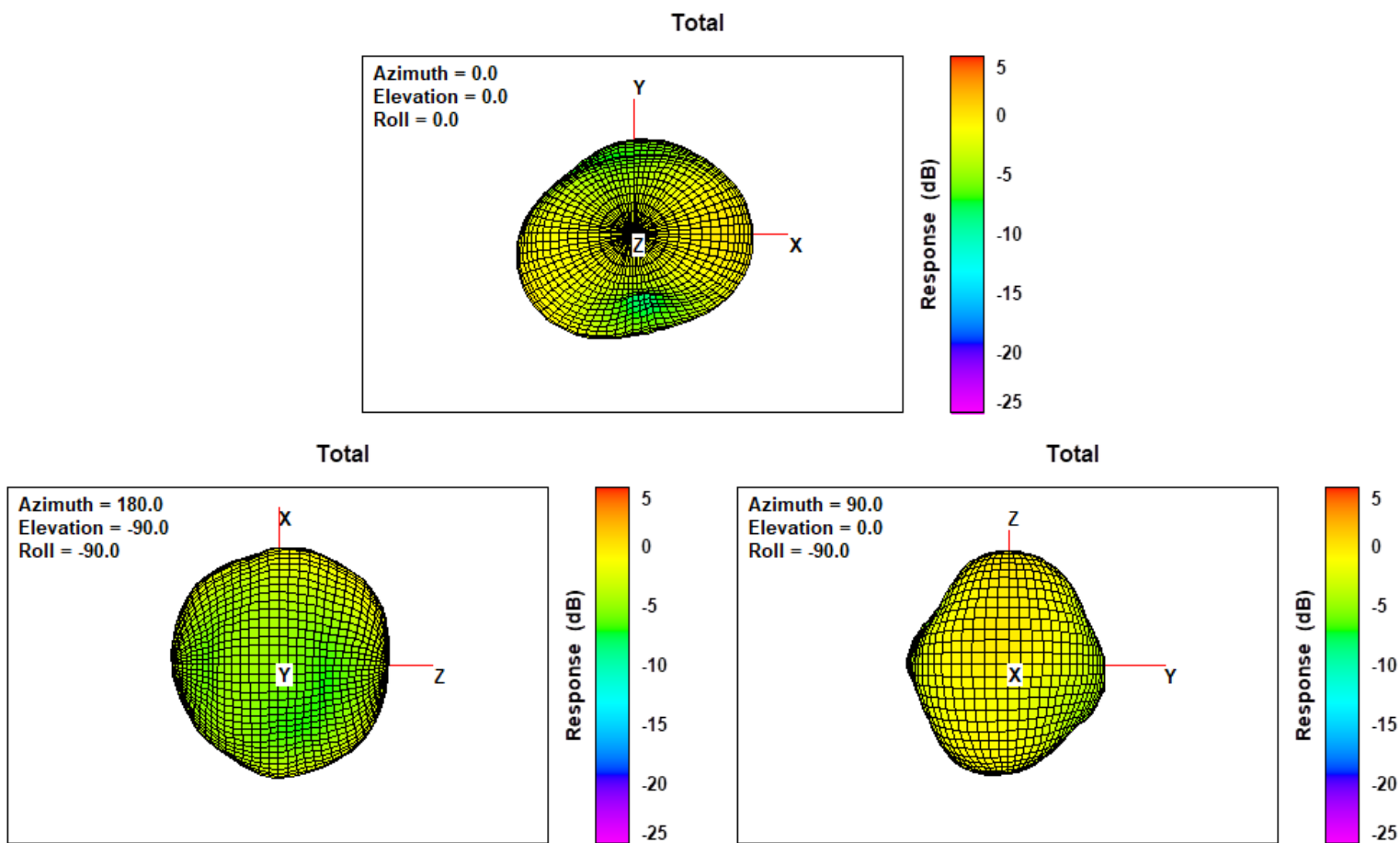
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_798MHz [WWAN AUX]



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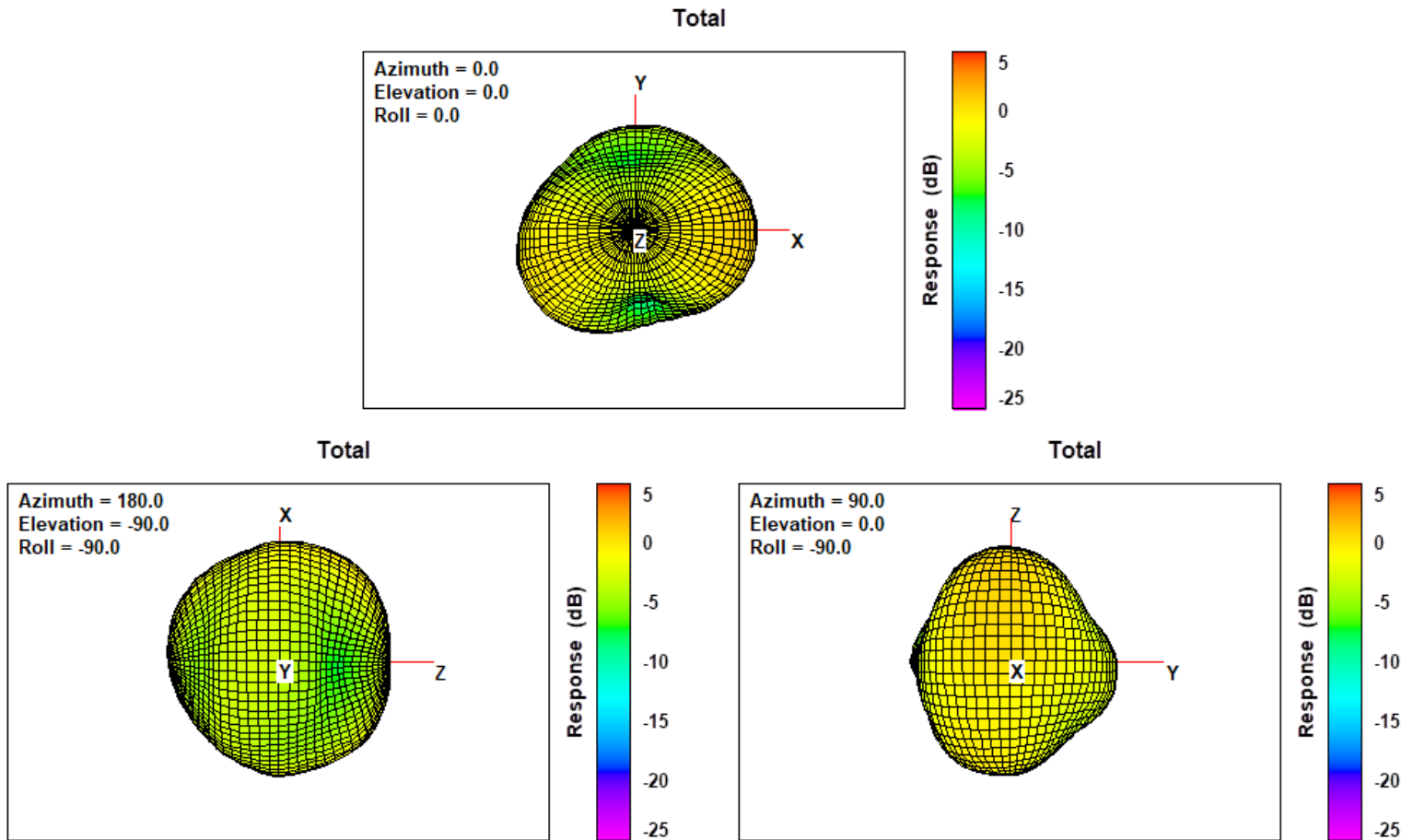
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_824MHz [WWAN AUX]



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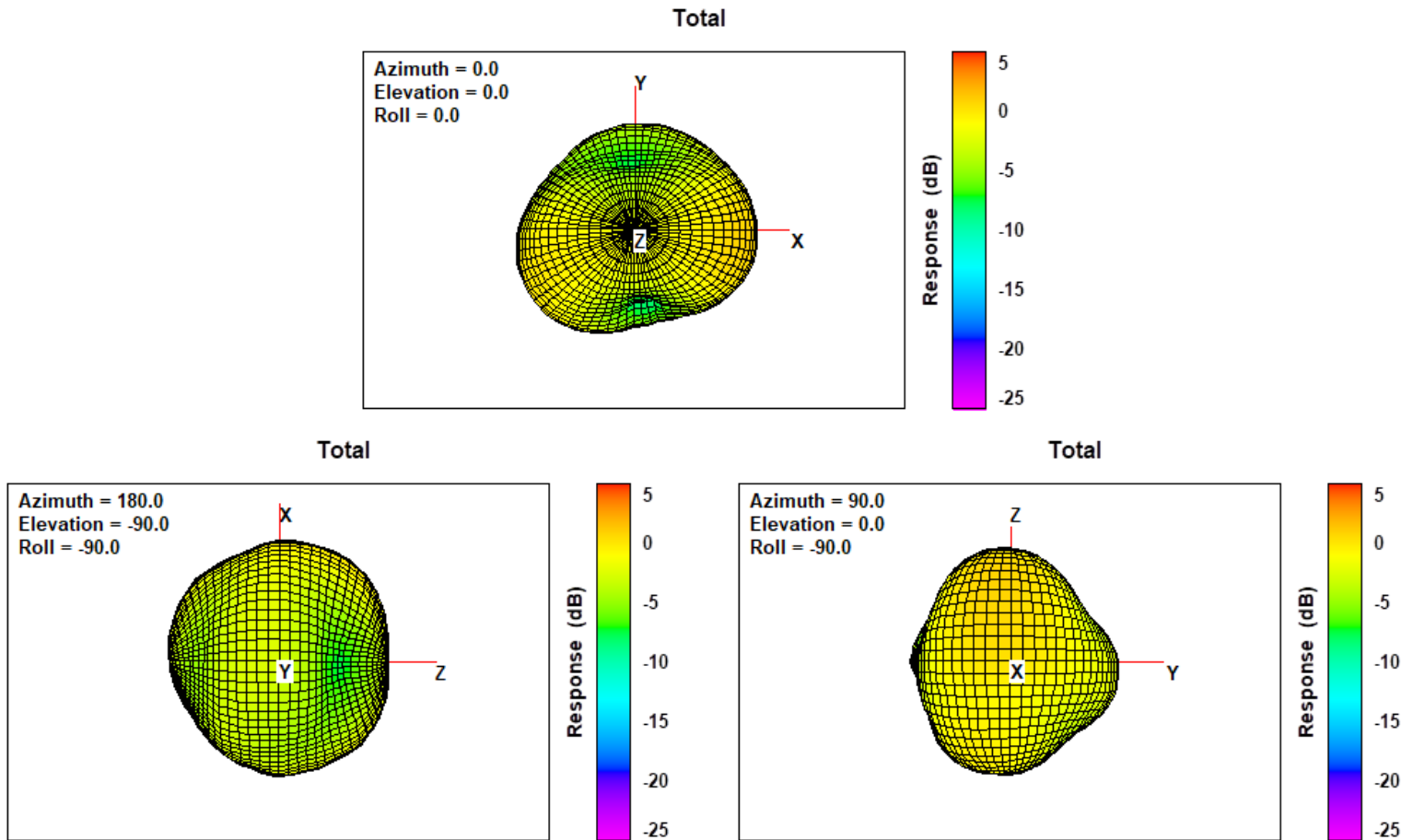
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_830MHz [WWAN AUX]



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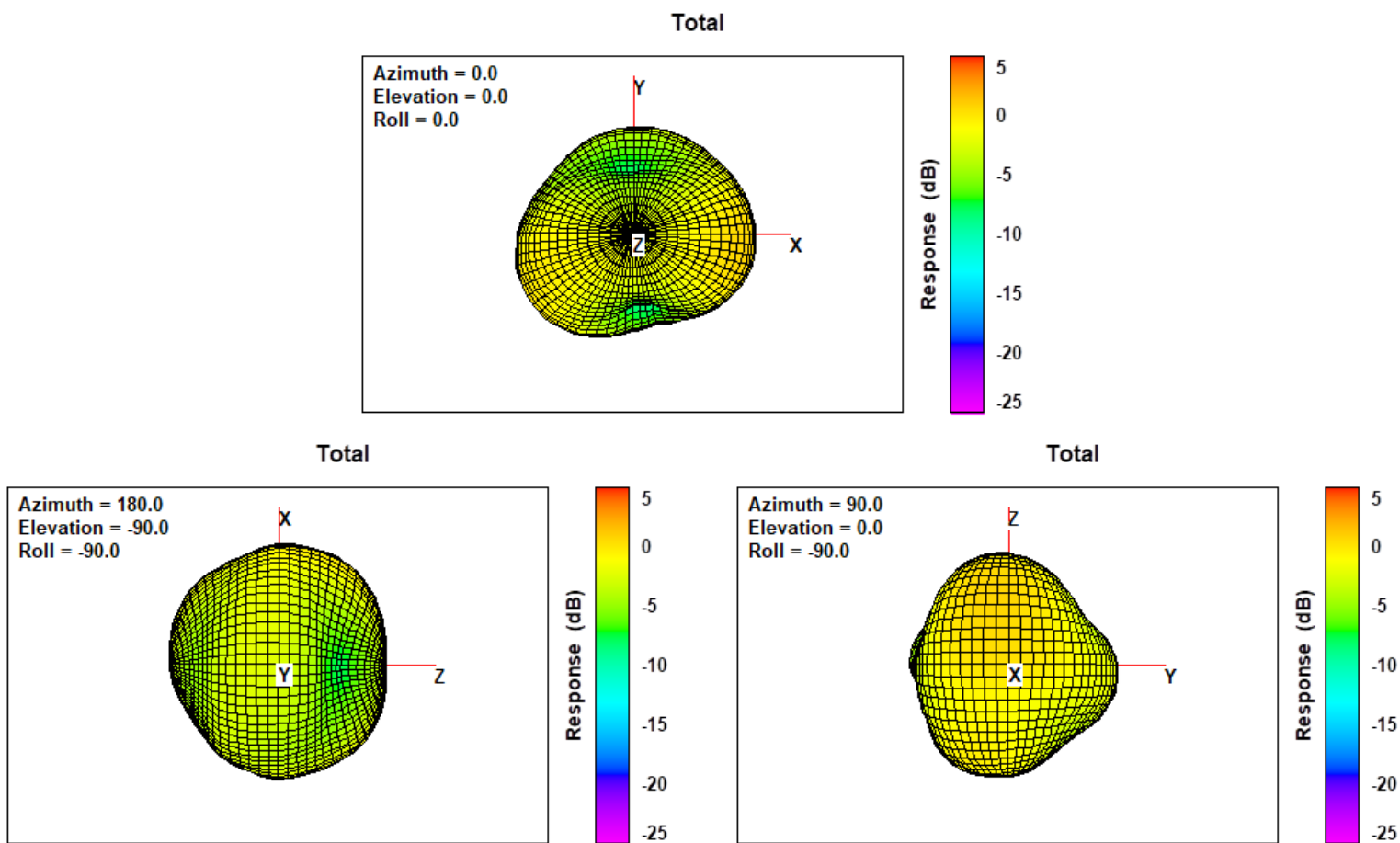
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_837MHz [WWAN AUX]



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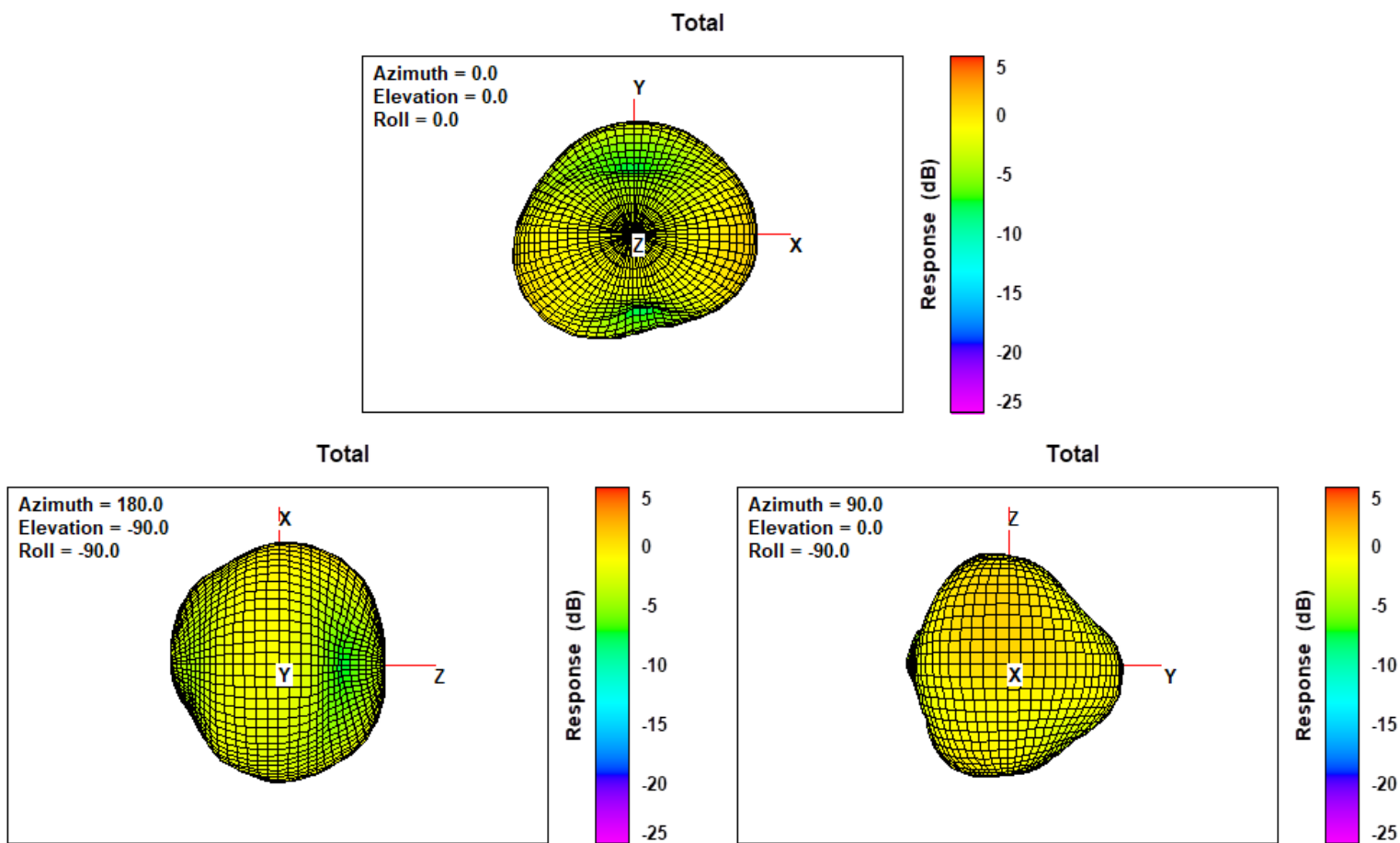
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_845MHz [WWAN AUX]



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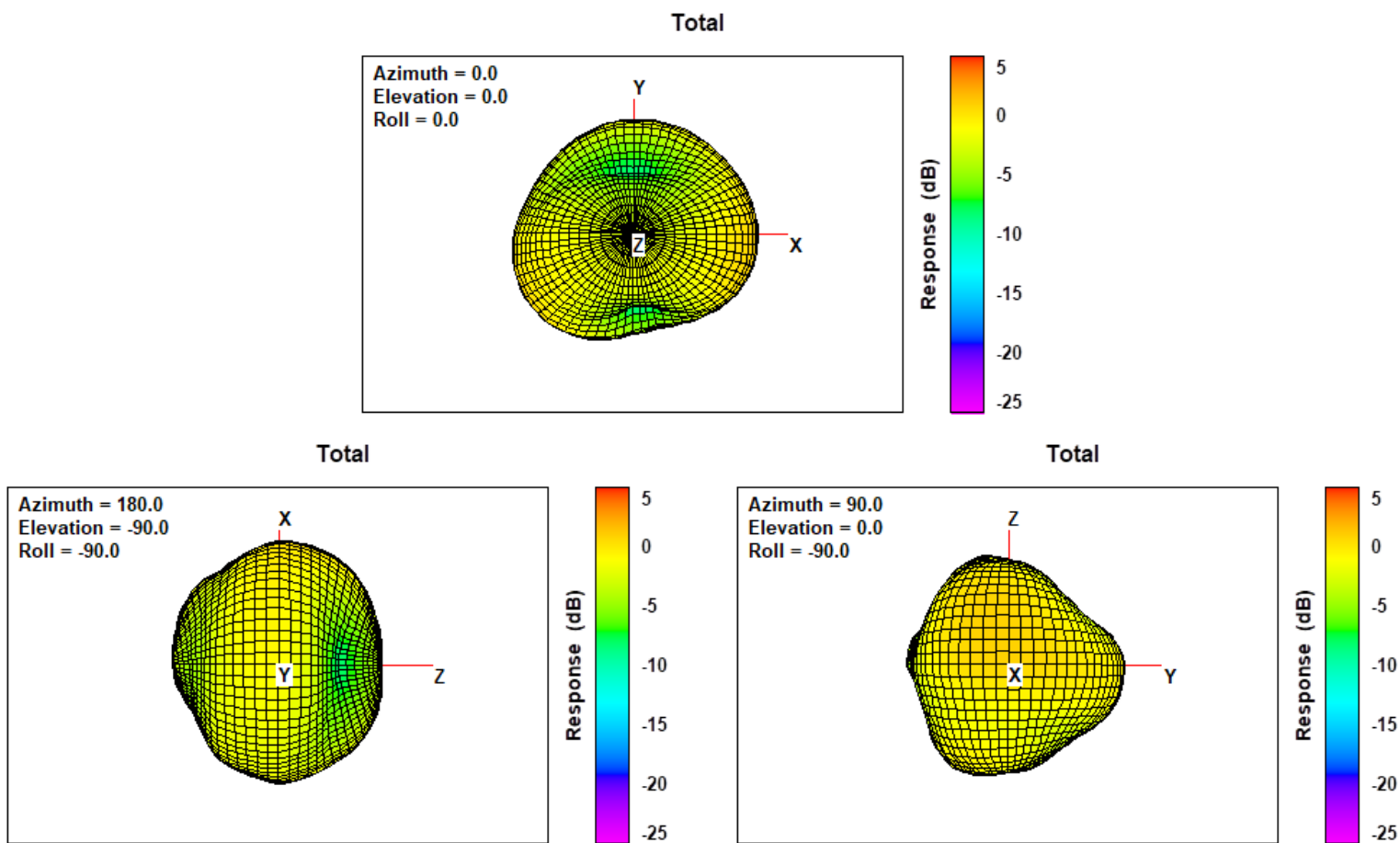
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_859MHz [WWAN AUX]



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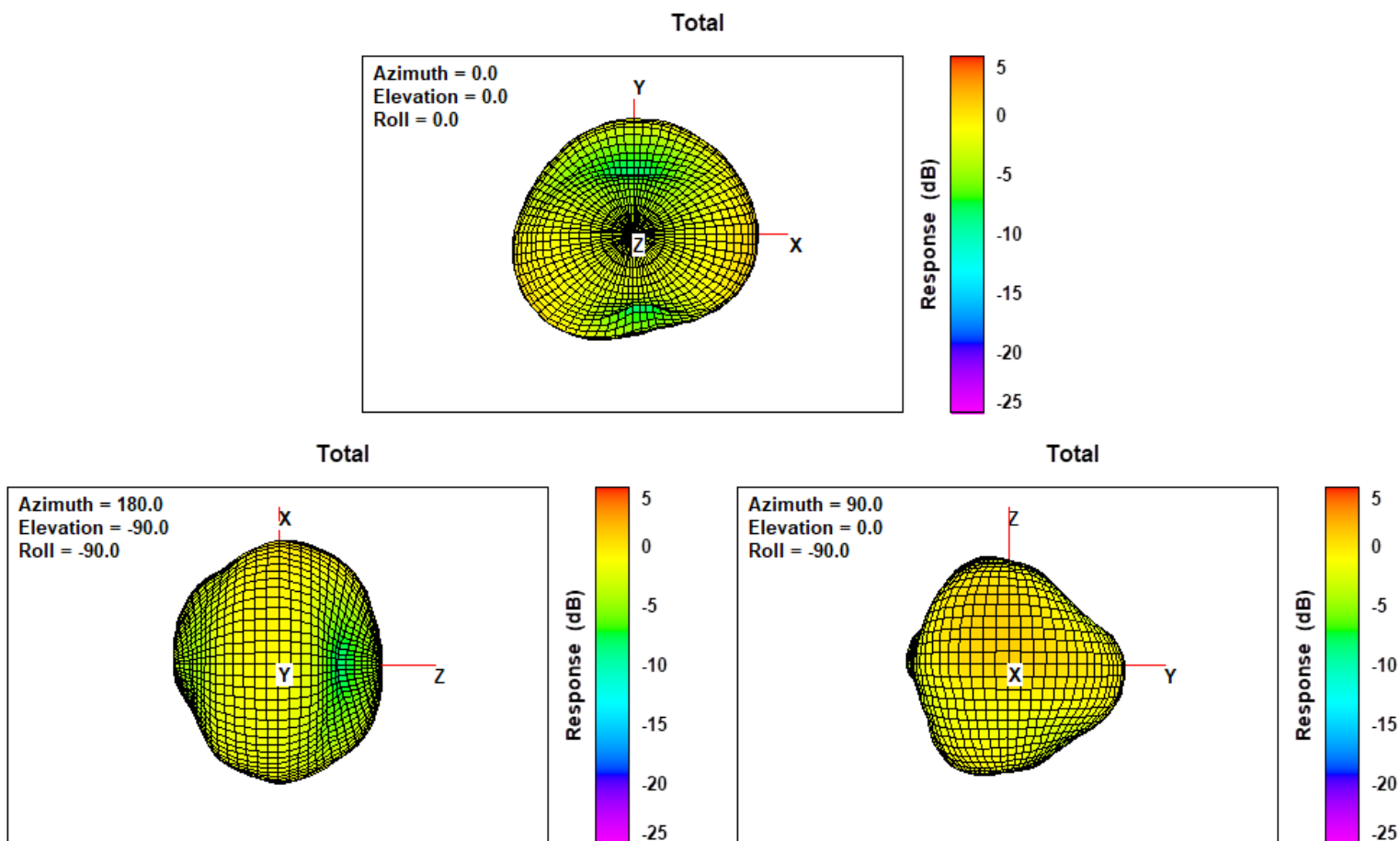
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_862MHz [WWAN AUX]



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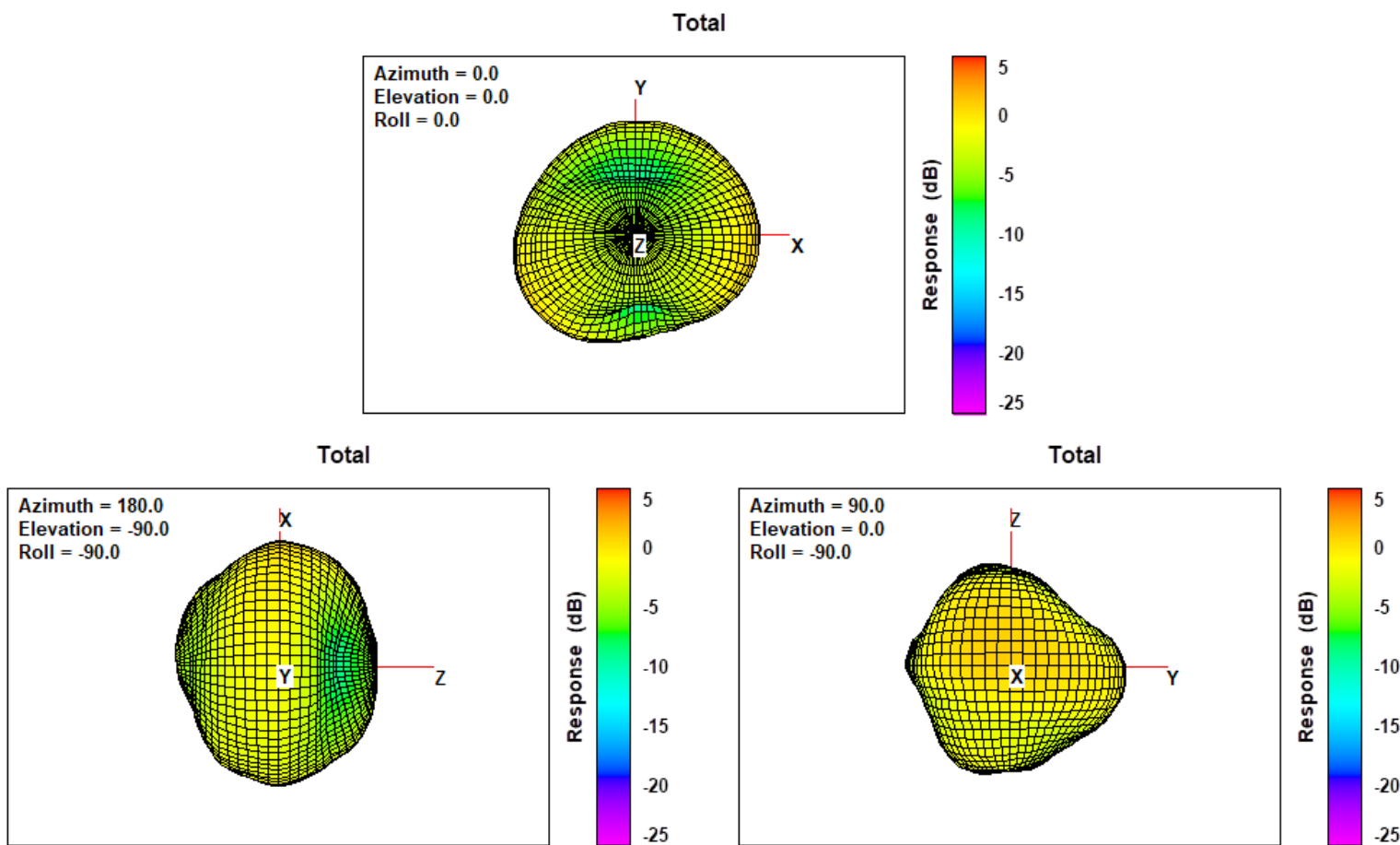
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_880MHz [WWAN AUX]



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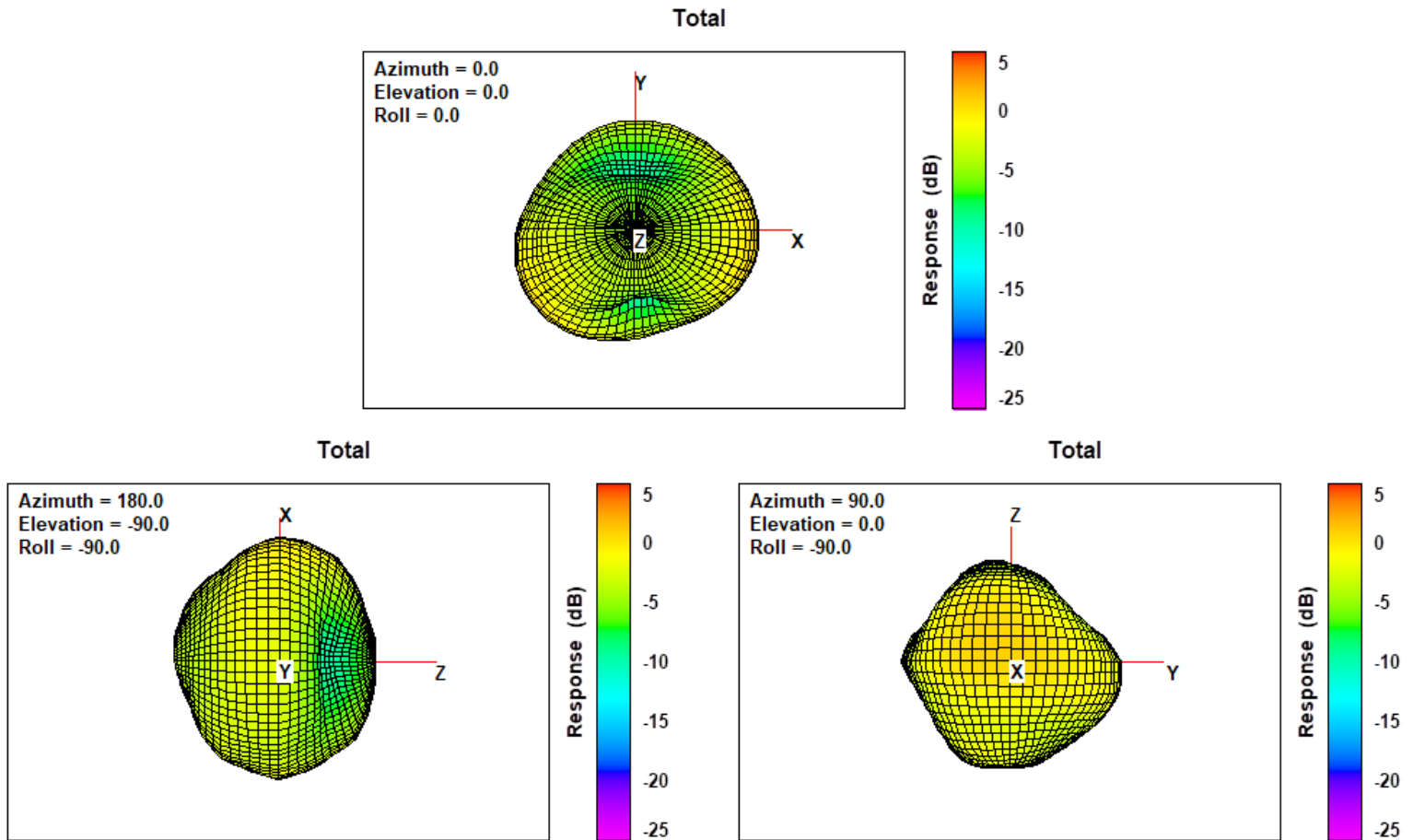
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_894MHz [WWAN AUX]



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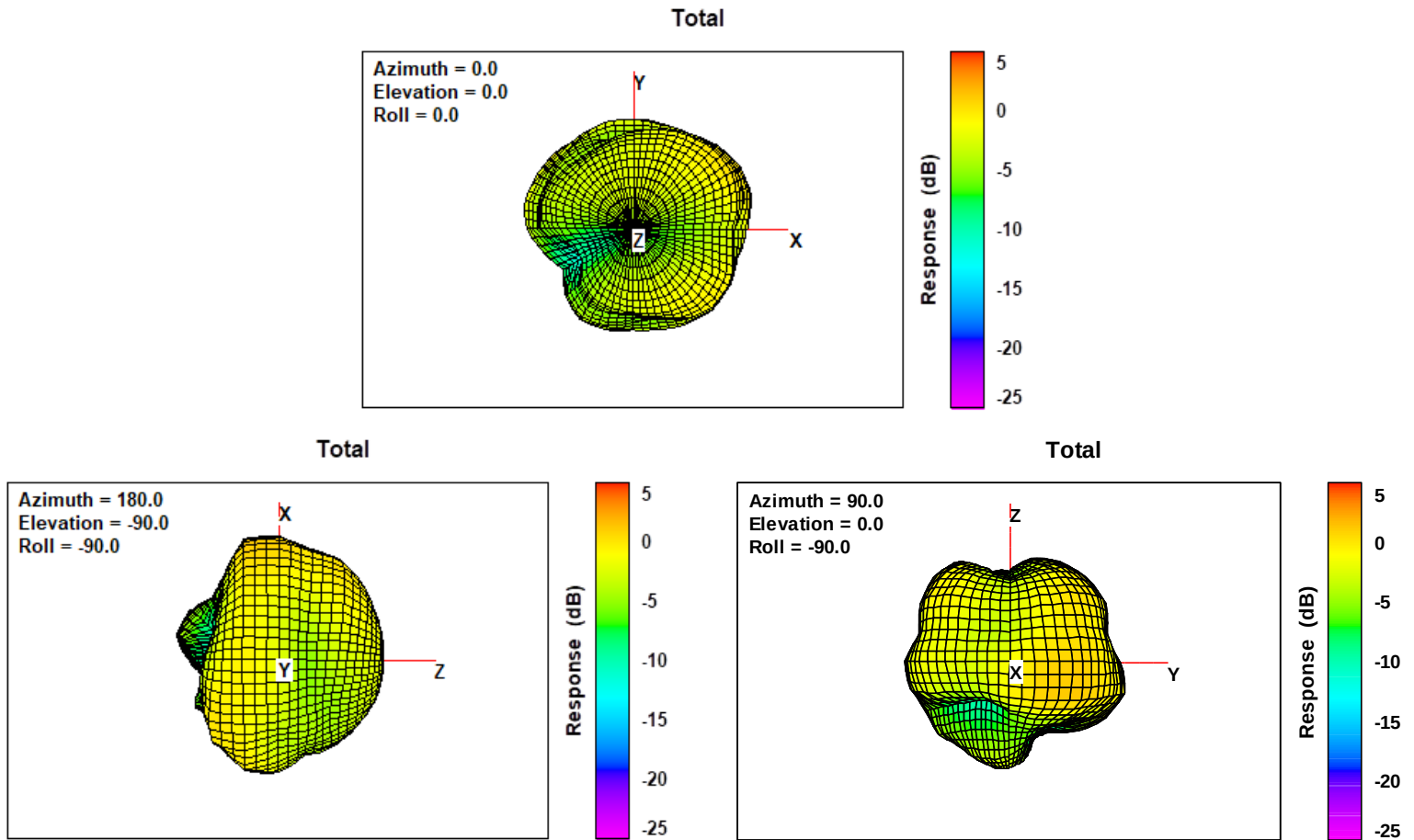
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_1710MHz [WWAN AUX]



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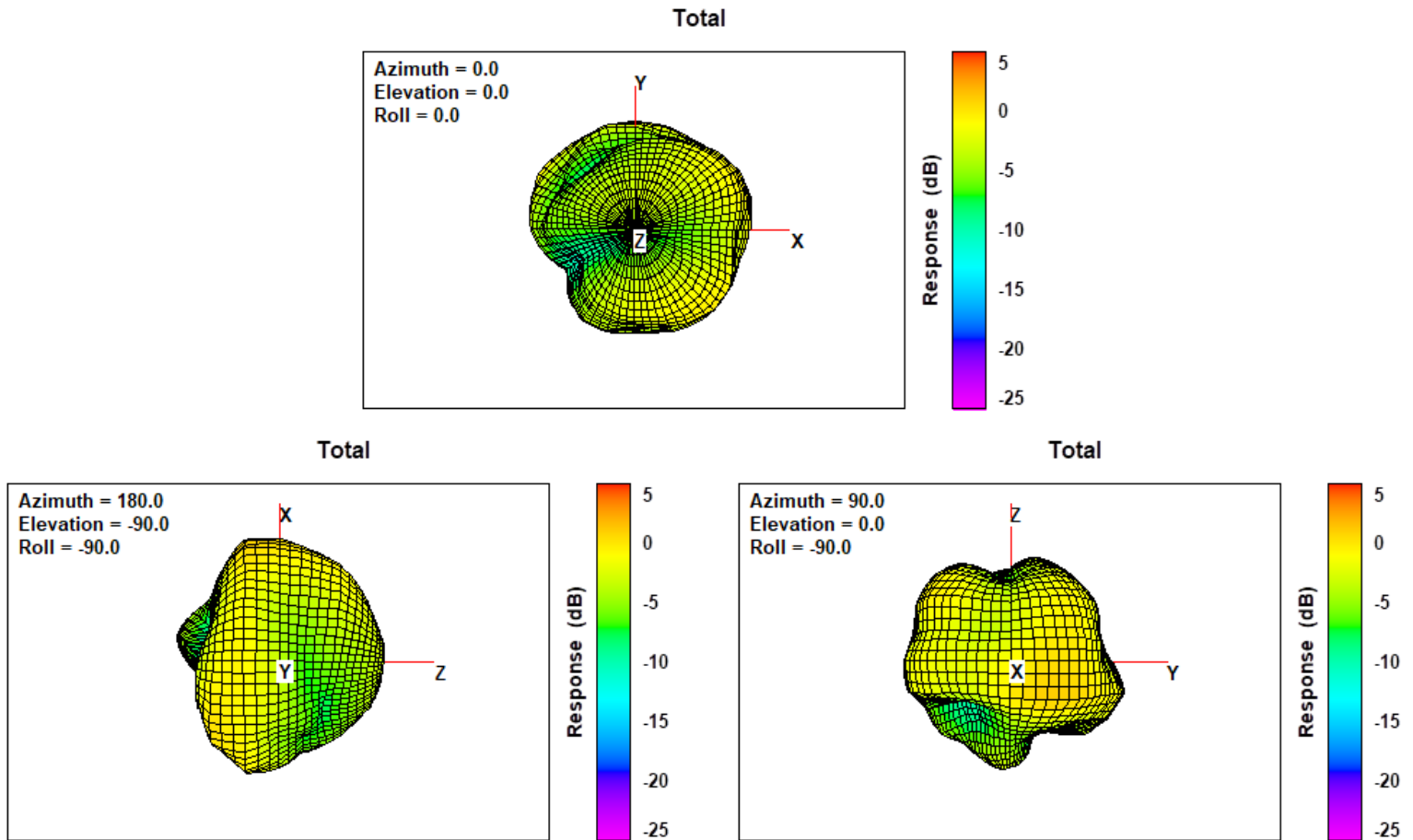
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_1750MHz [WWAN AUX]



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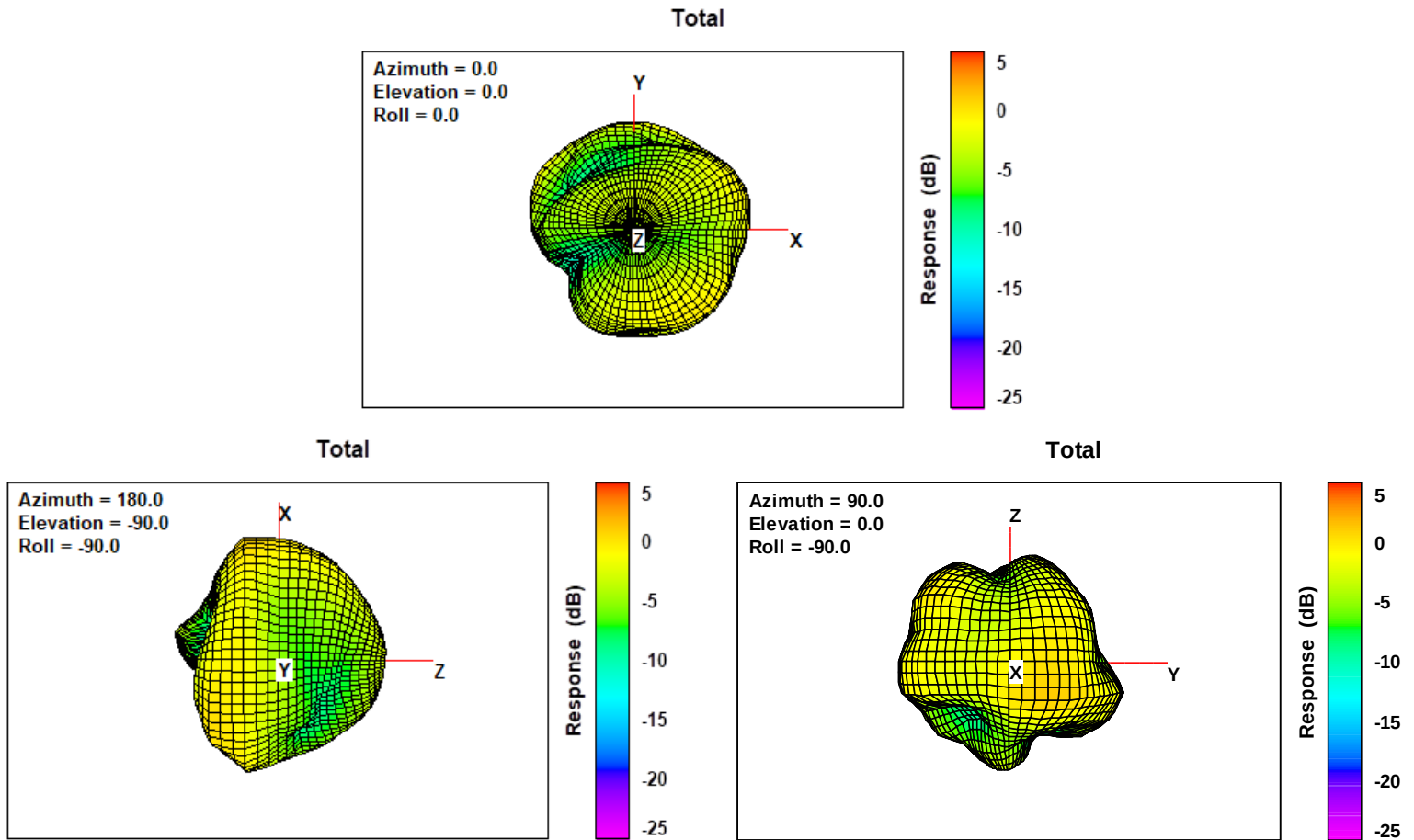
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_1780MHz [WWAN AUX]



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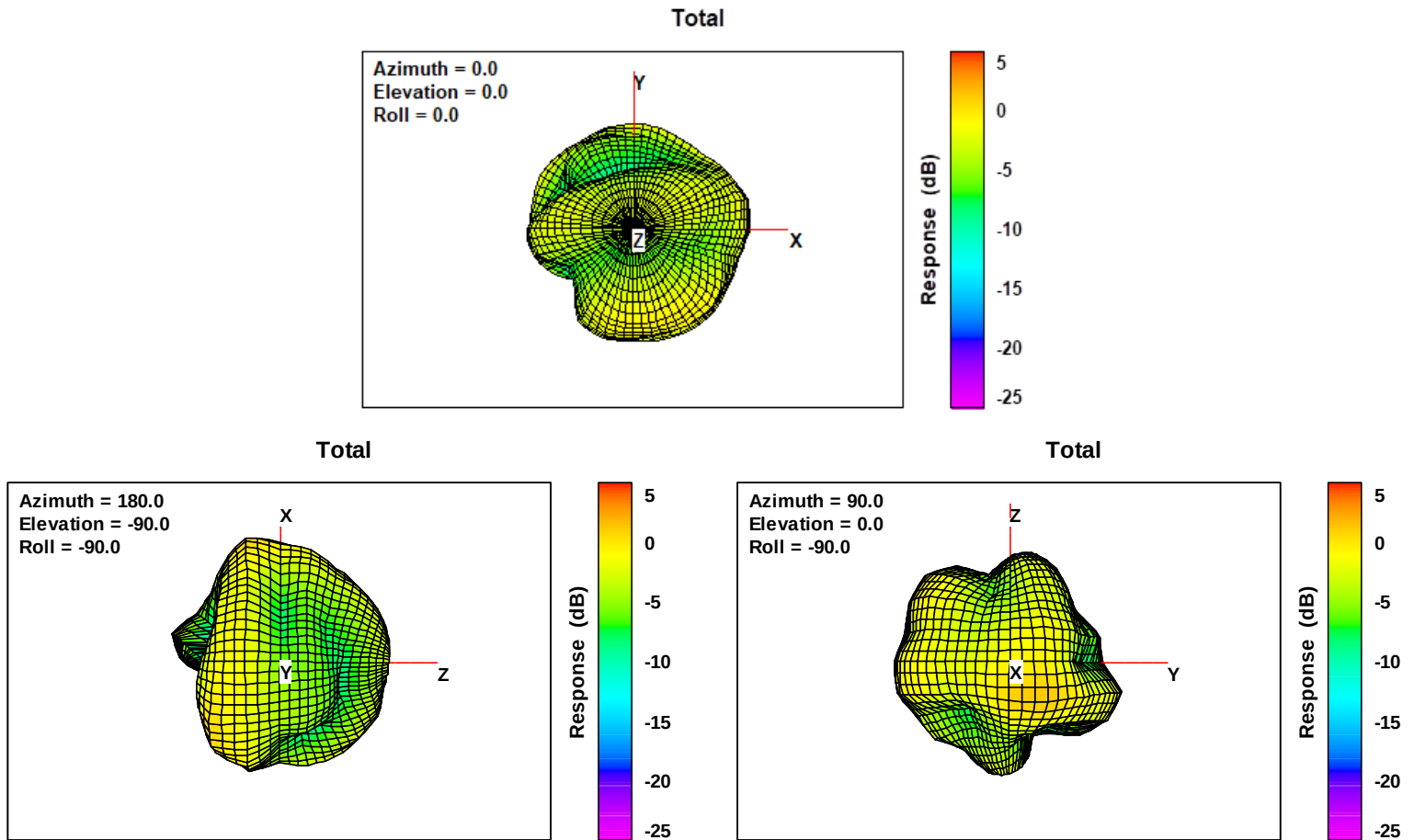
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_1850MHz [WWAN AUX]



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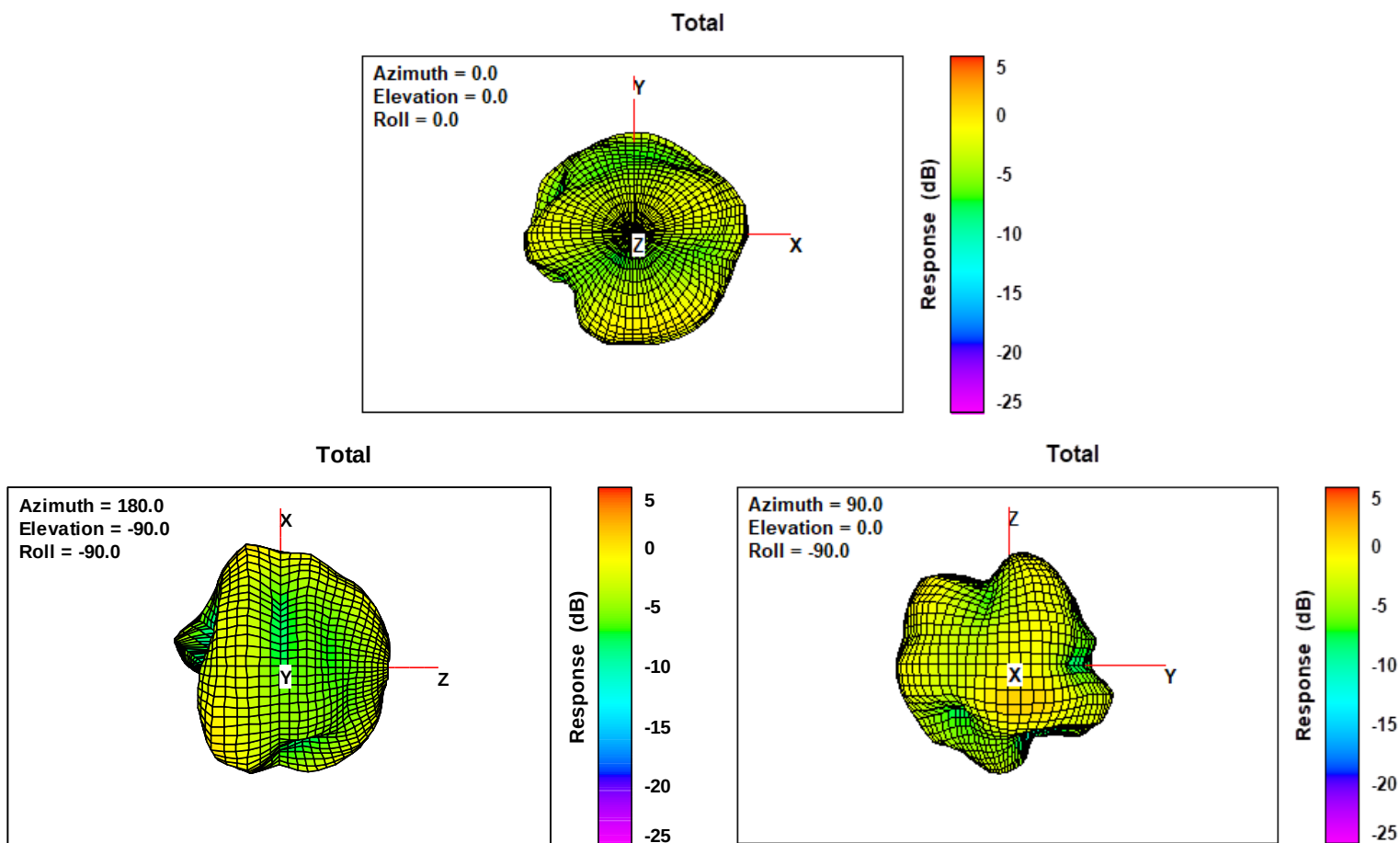
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_1880MHz [WWAN AUX]



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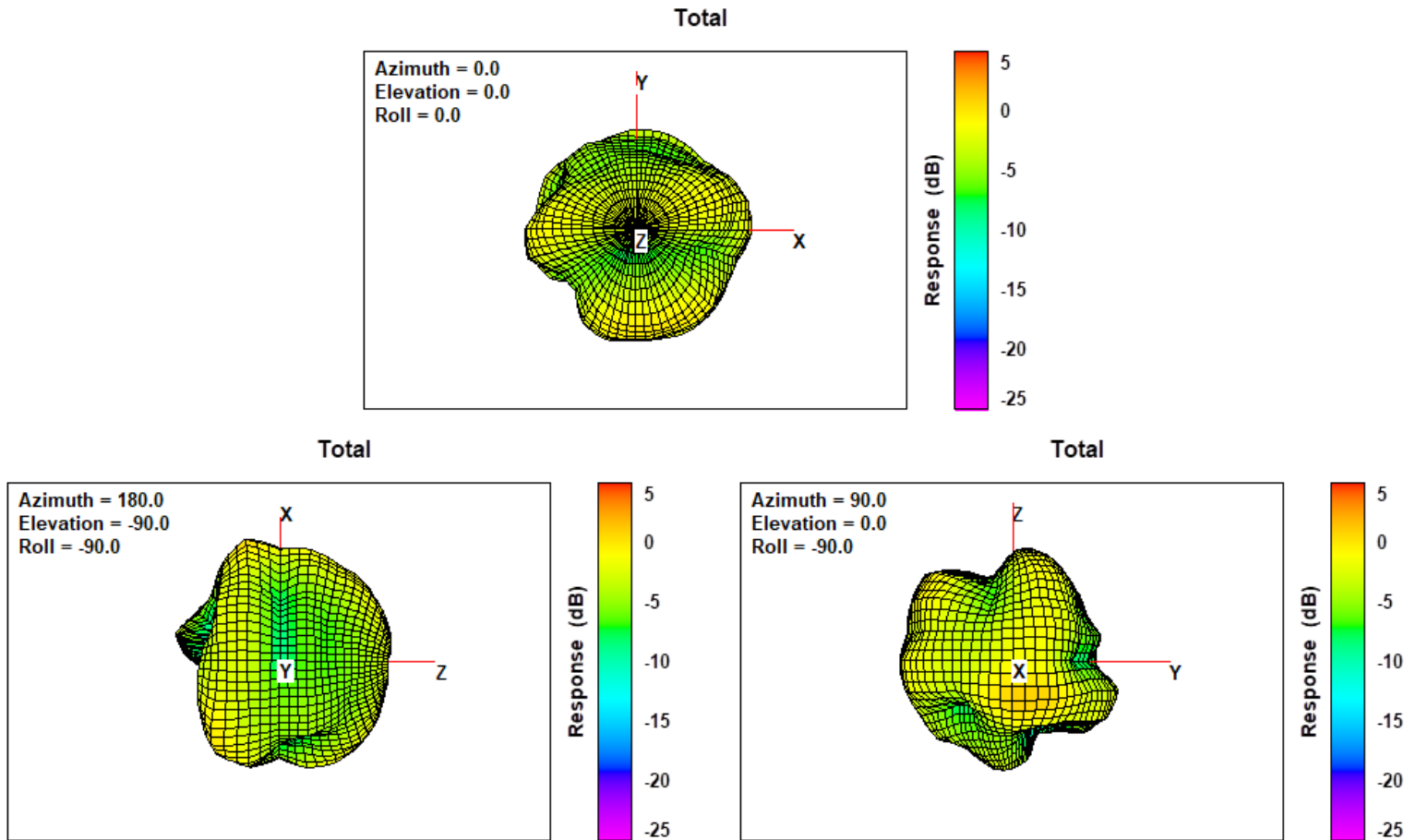
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_1900MHz [WWAN AUX]



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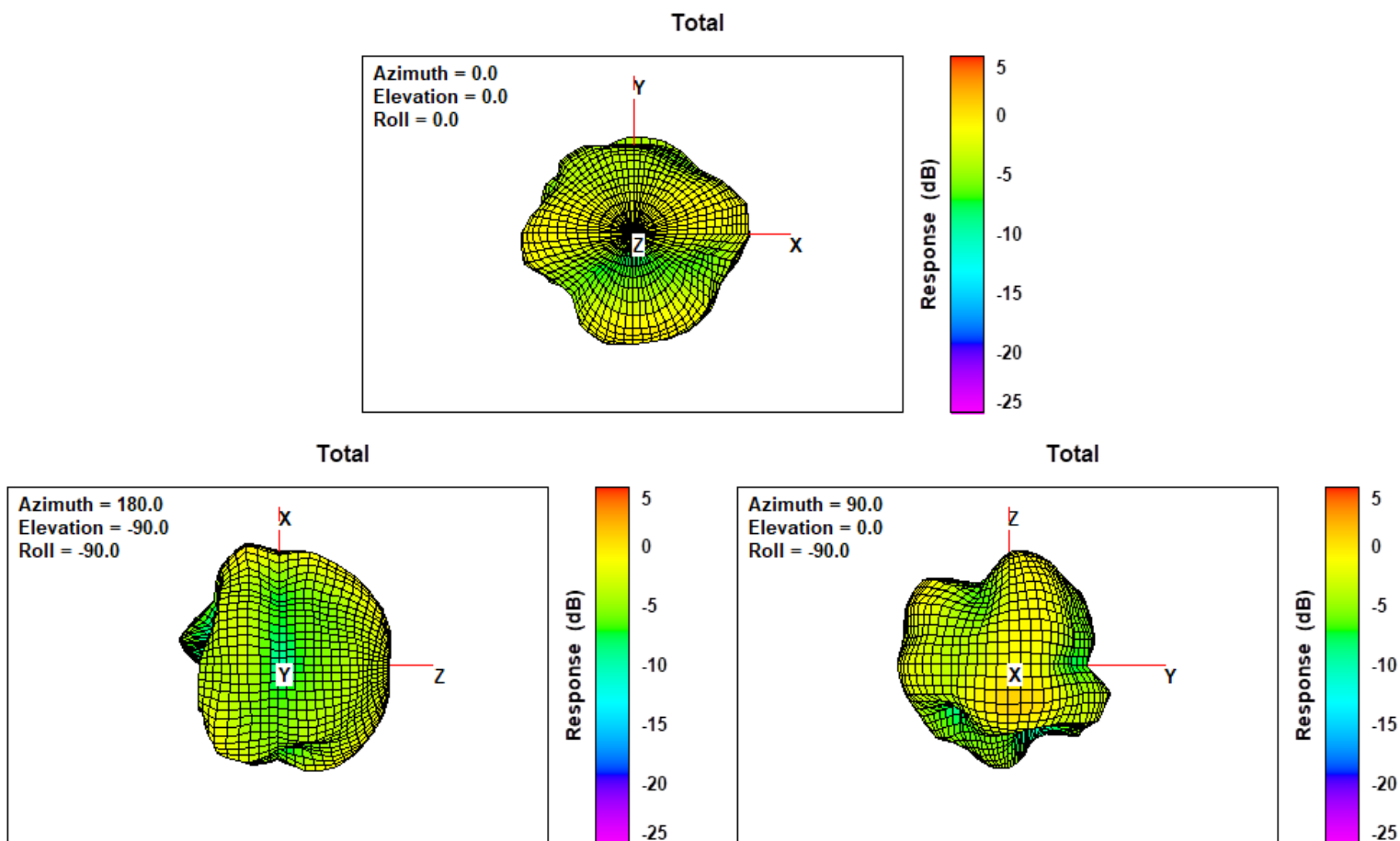
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_1930MHz [WWAN AUX]



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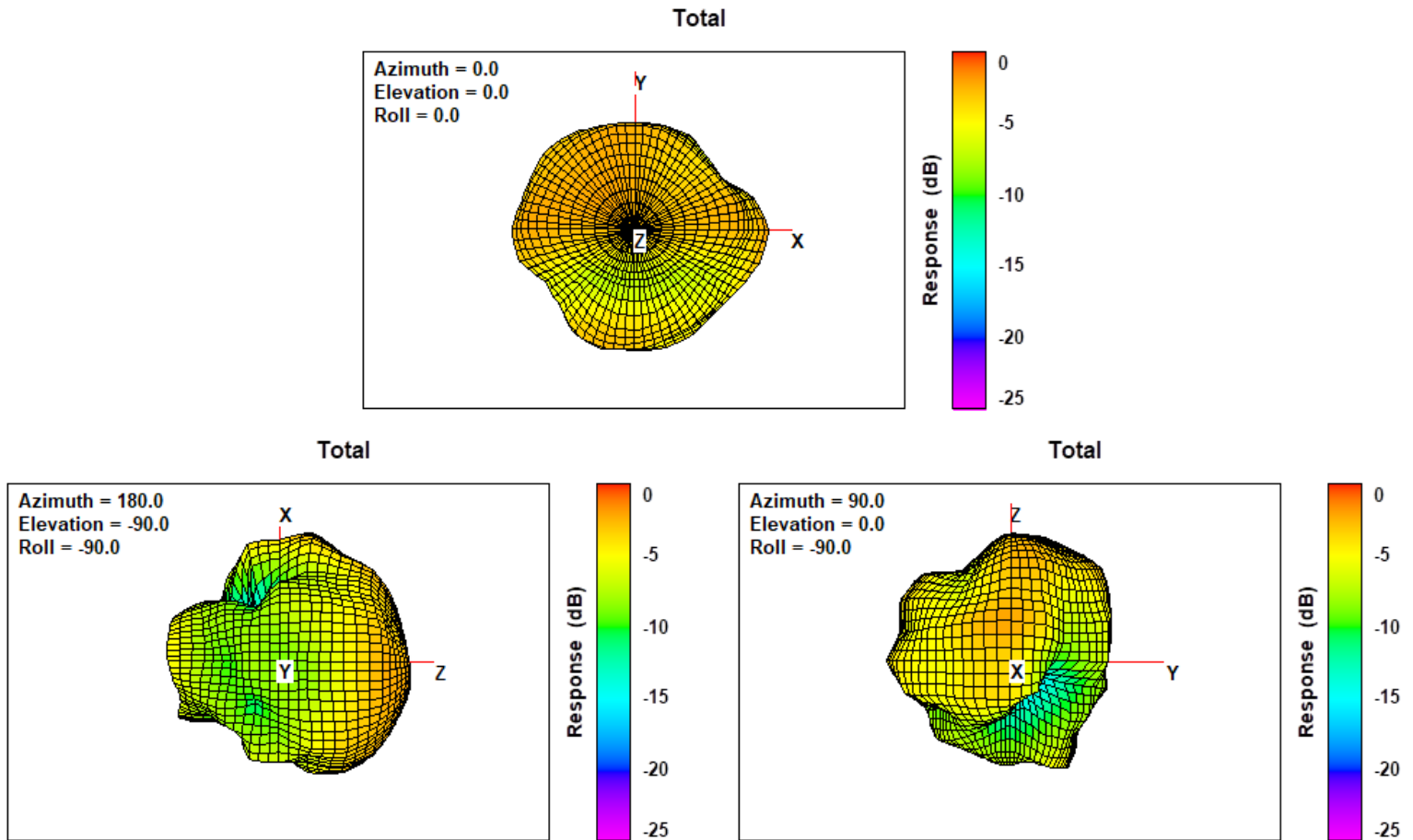
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_2010MHz [WWAN AUX]



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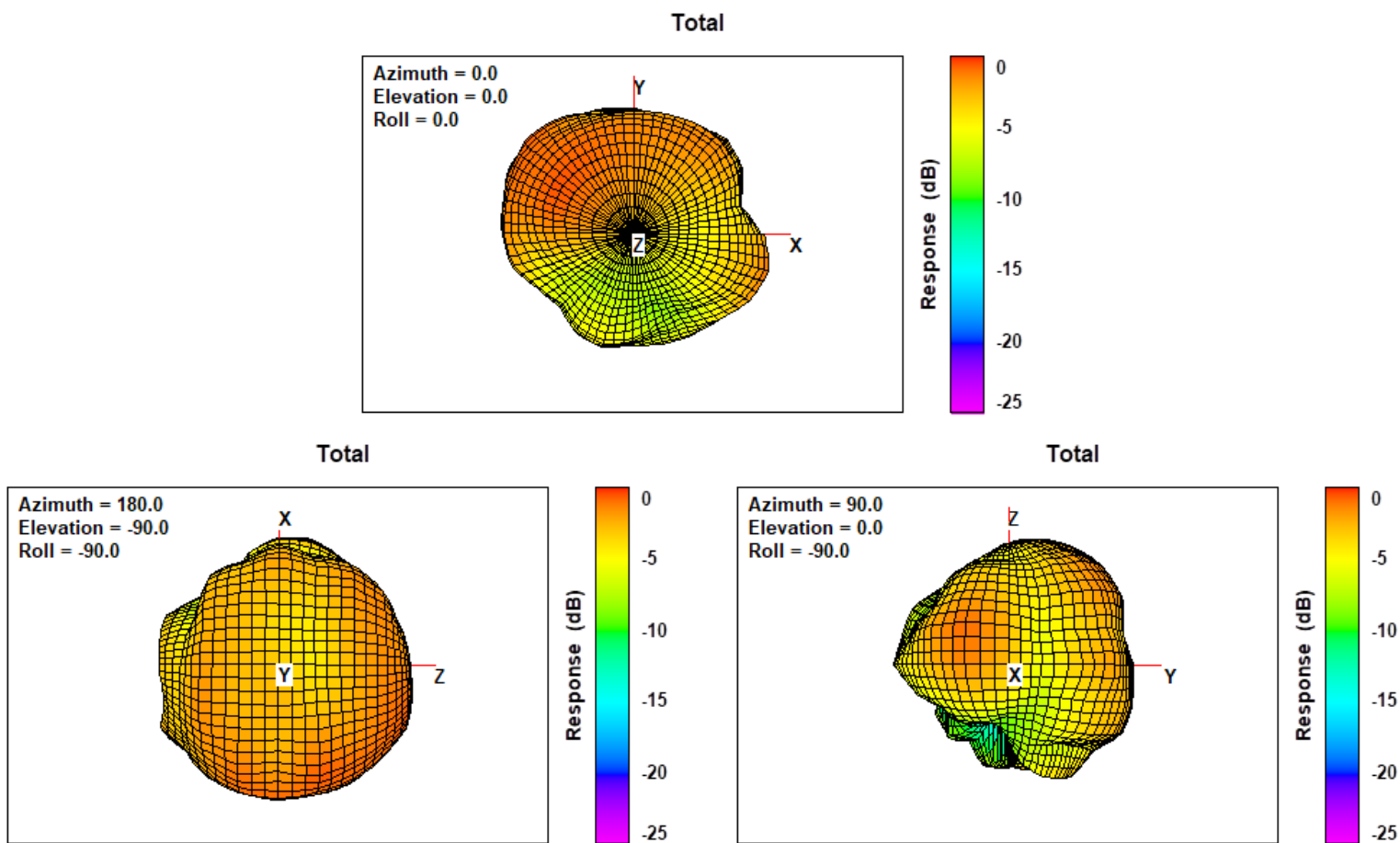
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_2140MHz [WWAN AUX]



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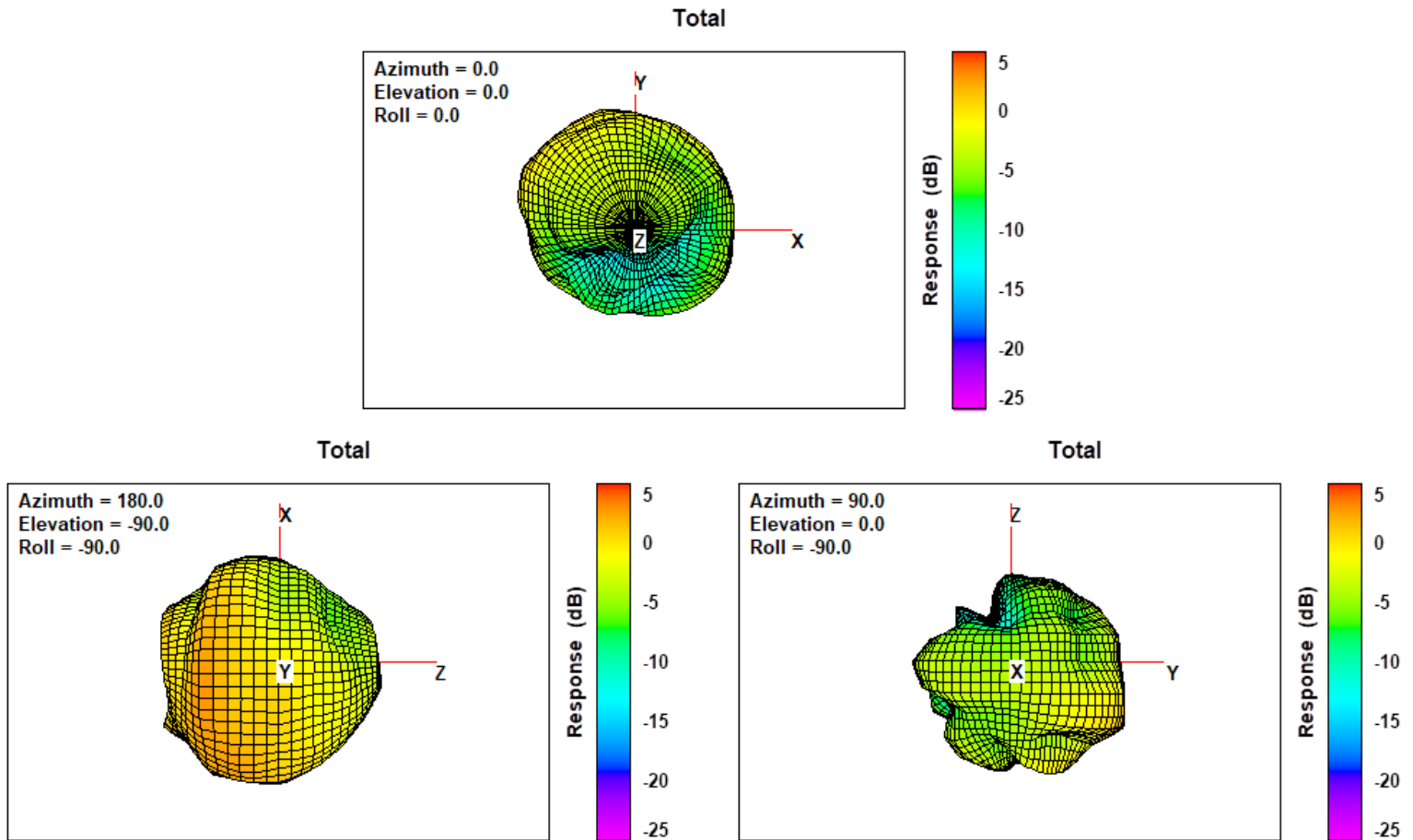
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_2300MHz [WWAN AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

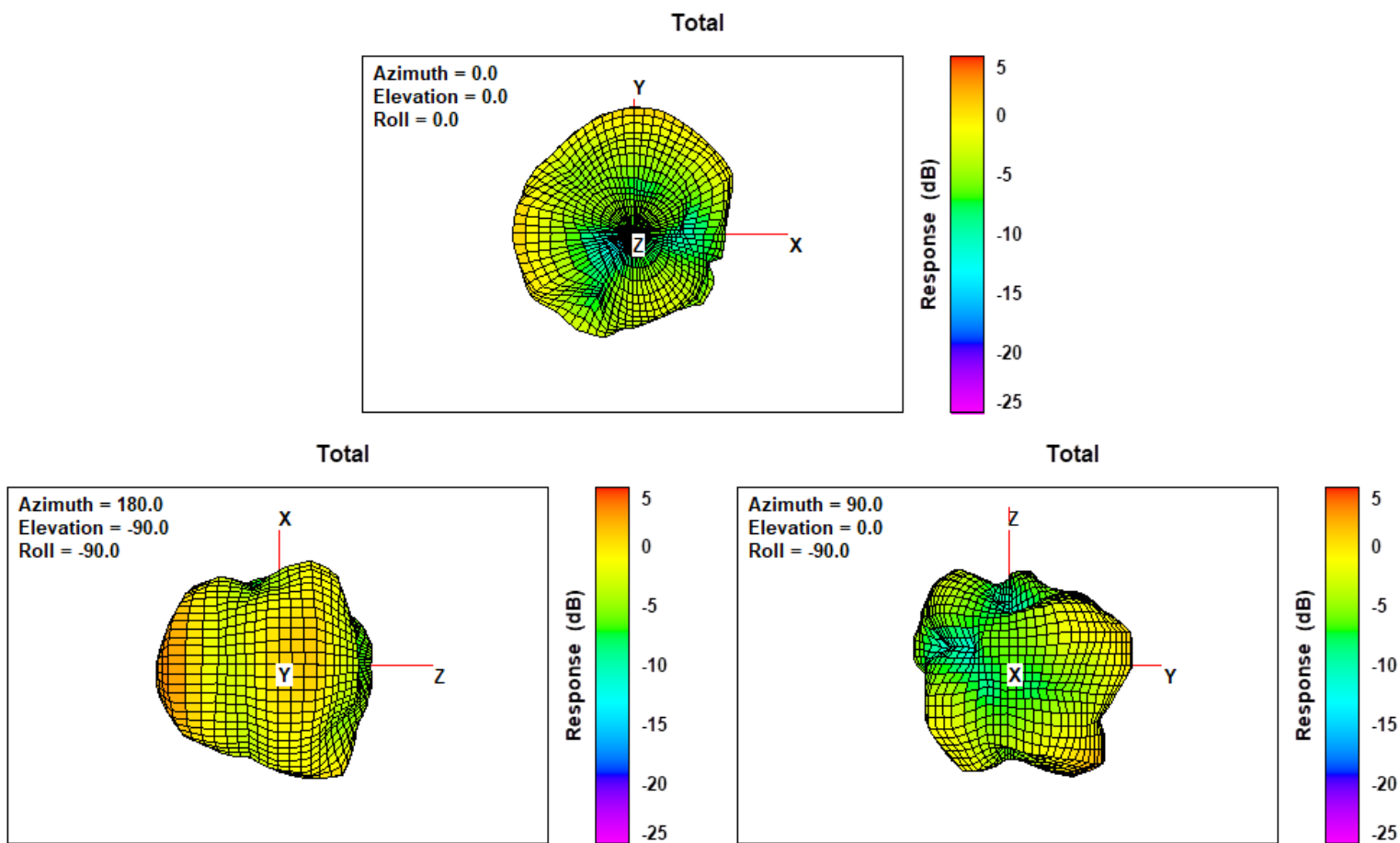
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_3500MHz [WWAN AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

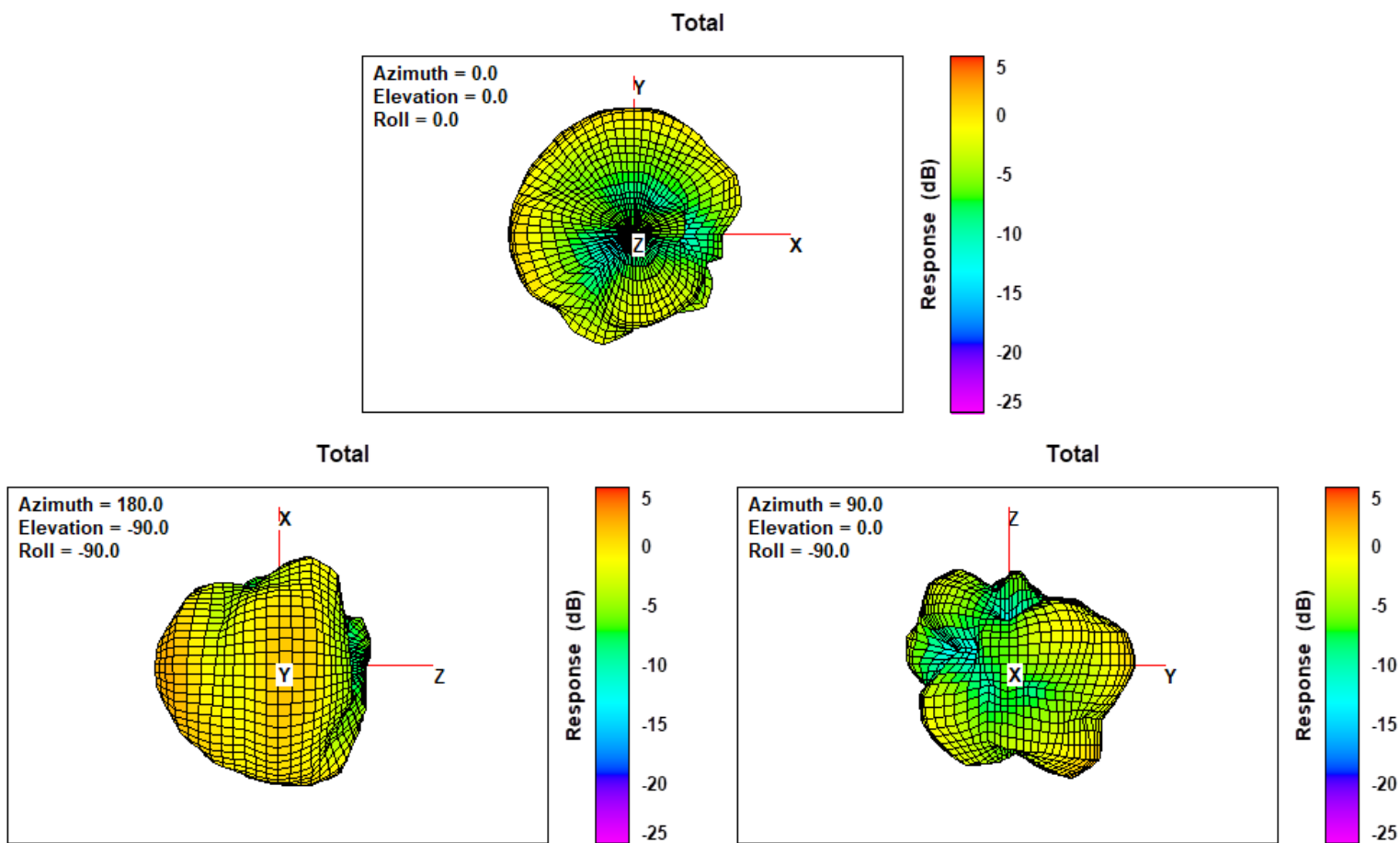
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_3600MHz [WWAN AUX]



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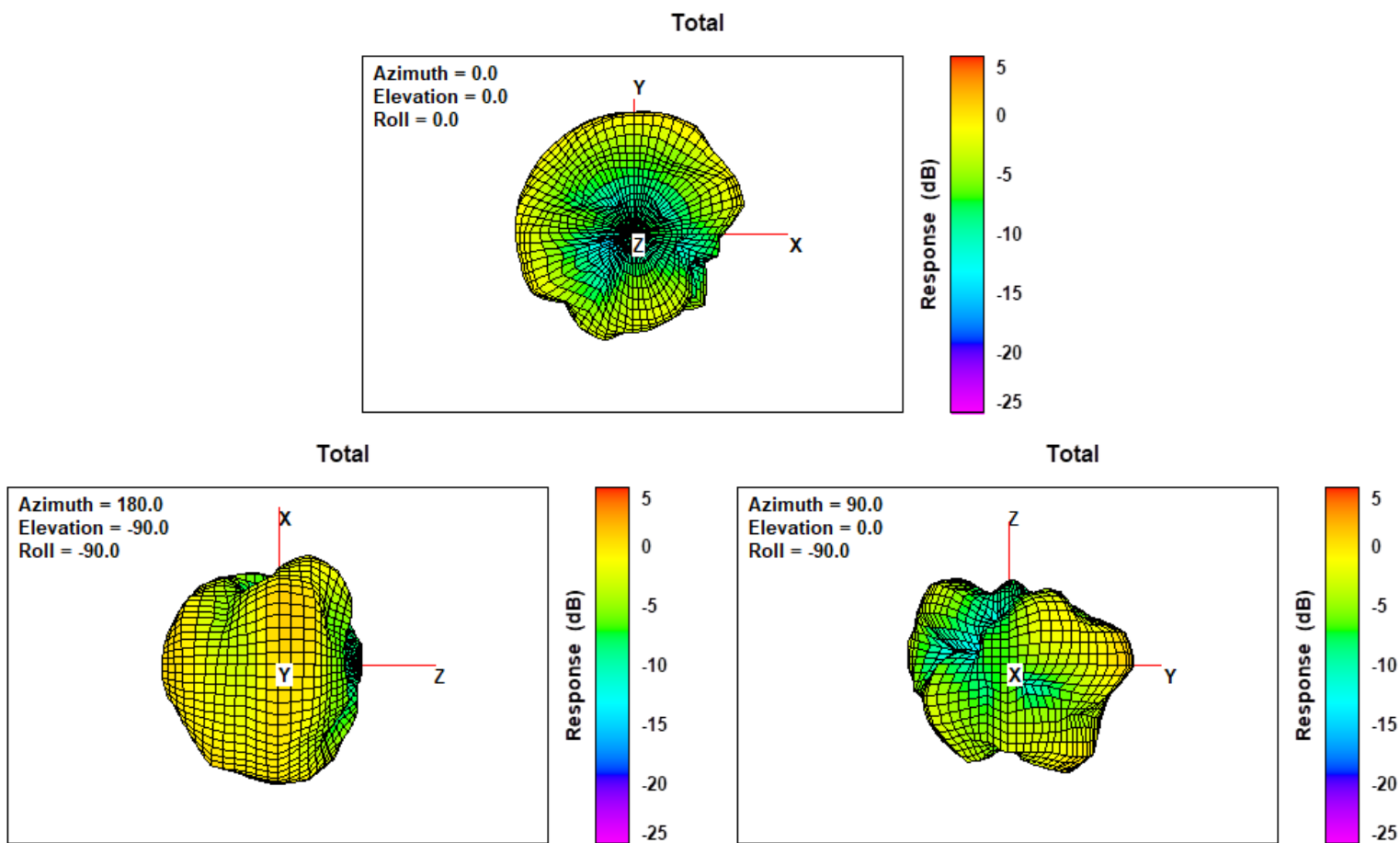
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_3700MHz [WWAN AUX]



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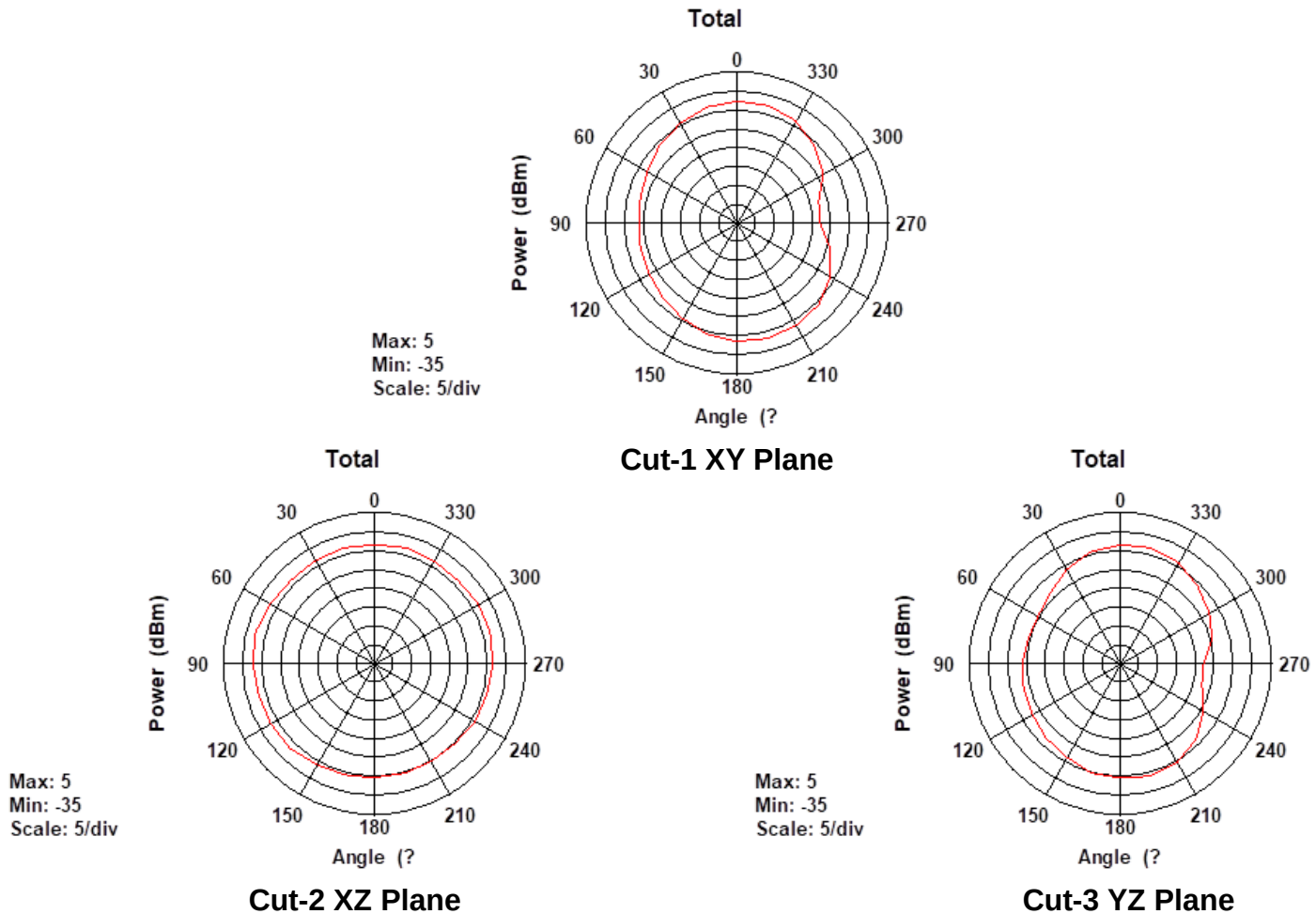
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_698MHz [WWAN AUX]



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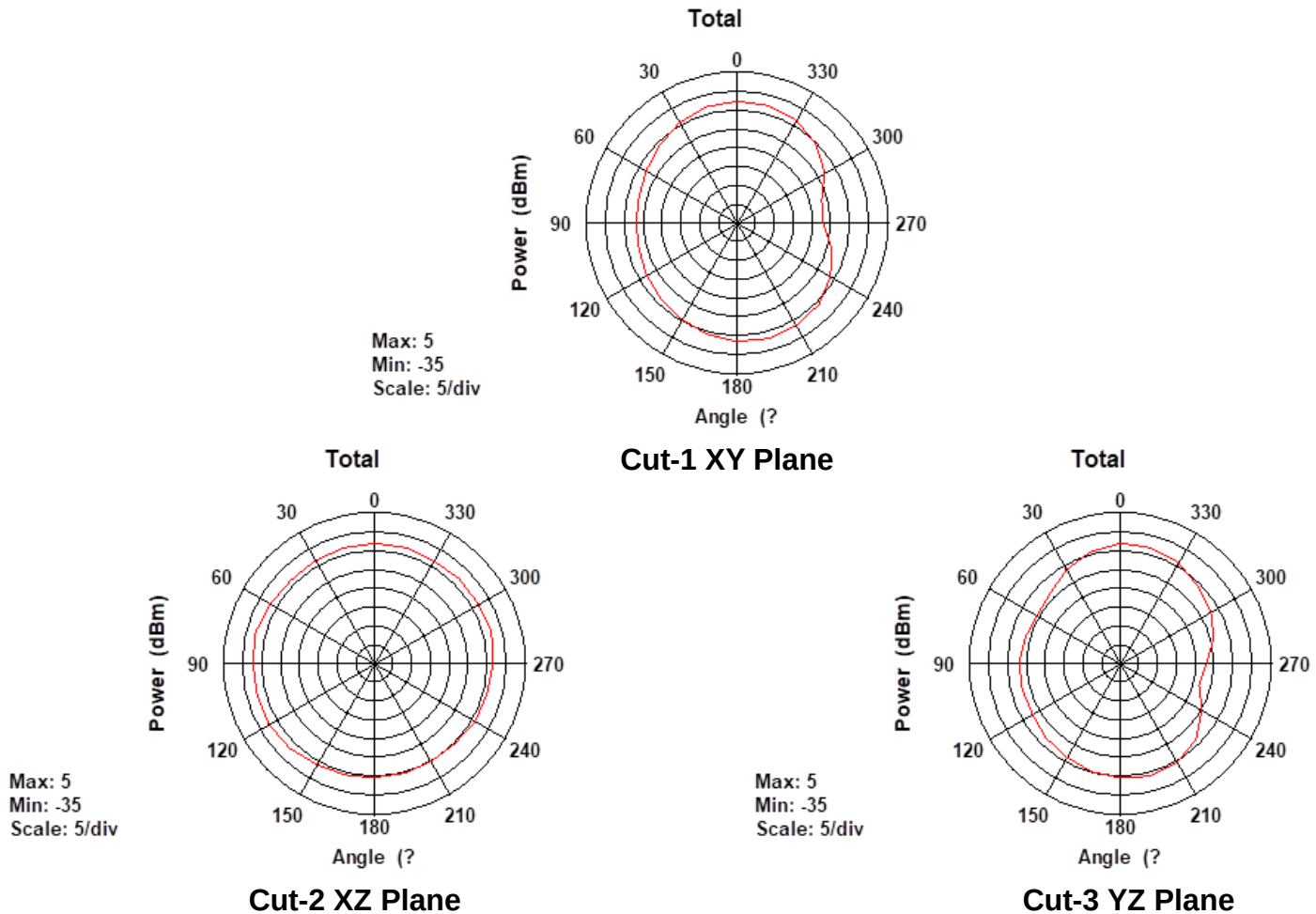
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_708MHz [WWAN AUX]



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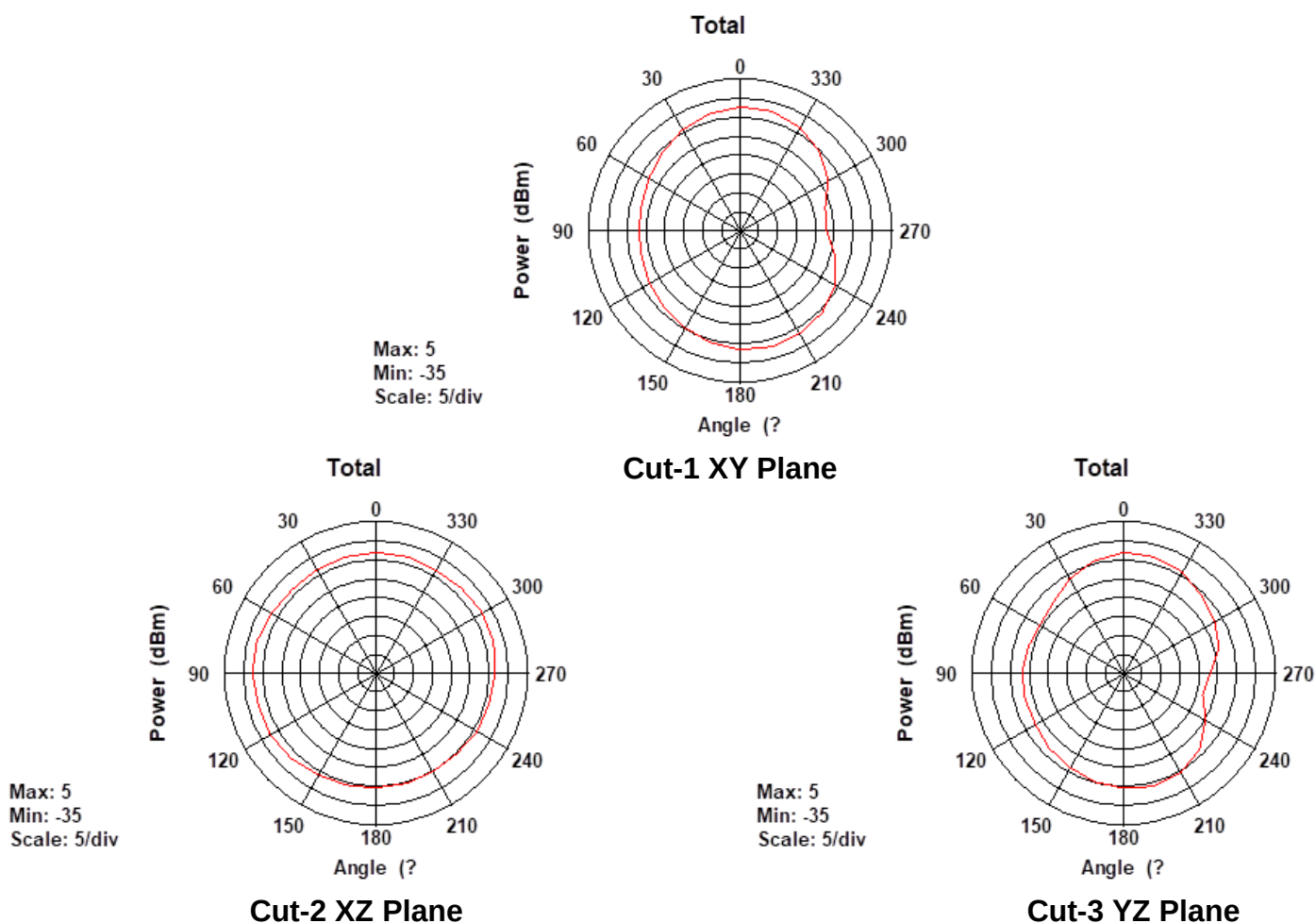
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

2D Radiation_710MHz [WWAN AUX]



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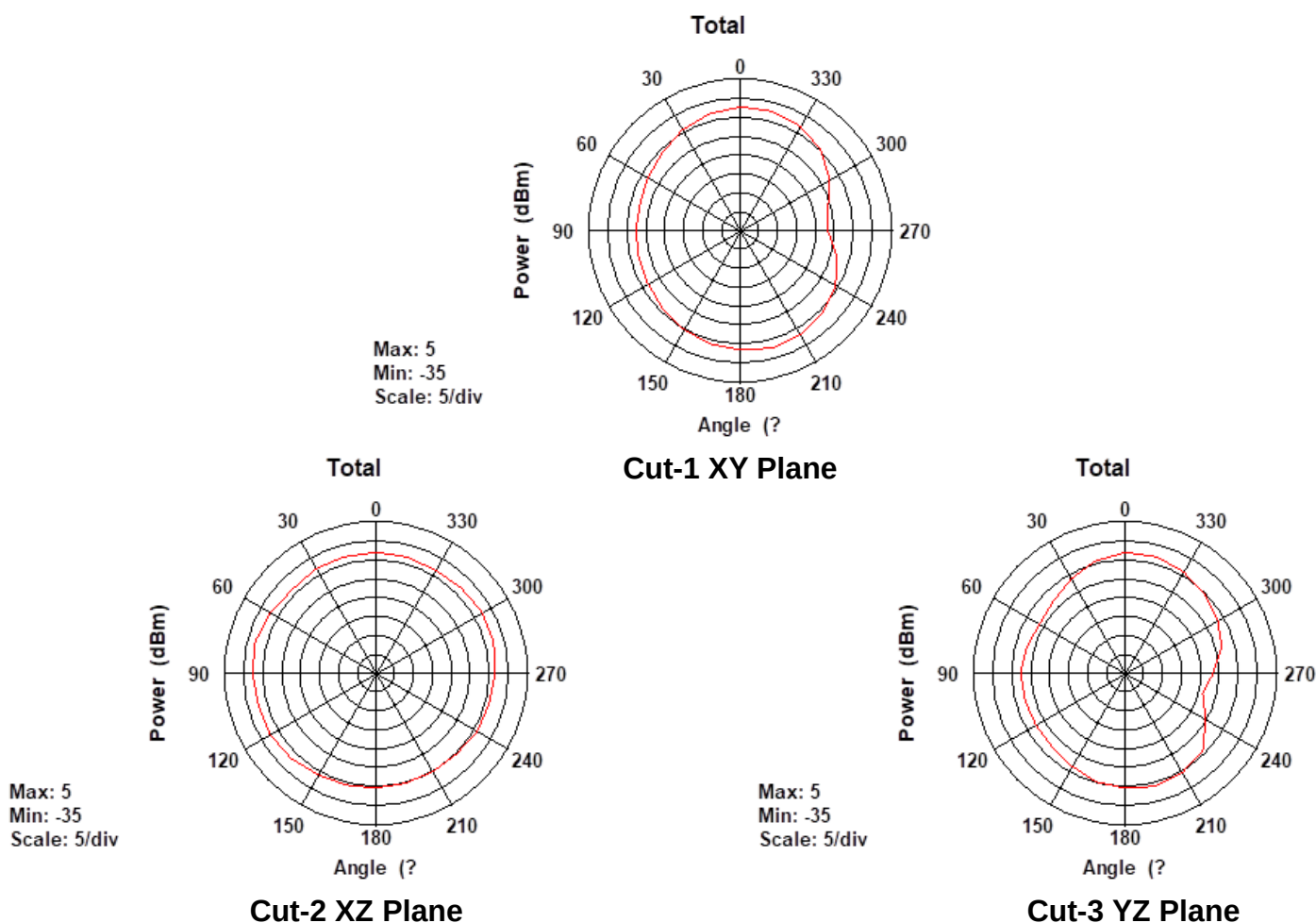
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

2D Radiation_717MHz [WWAN AUX]



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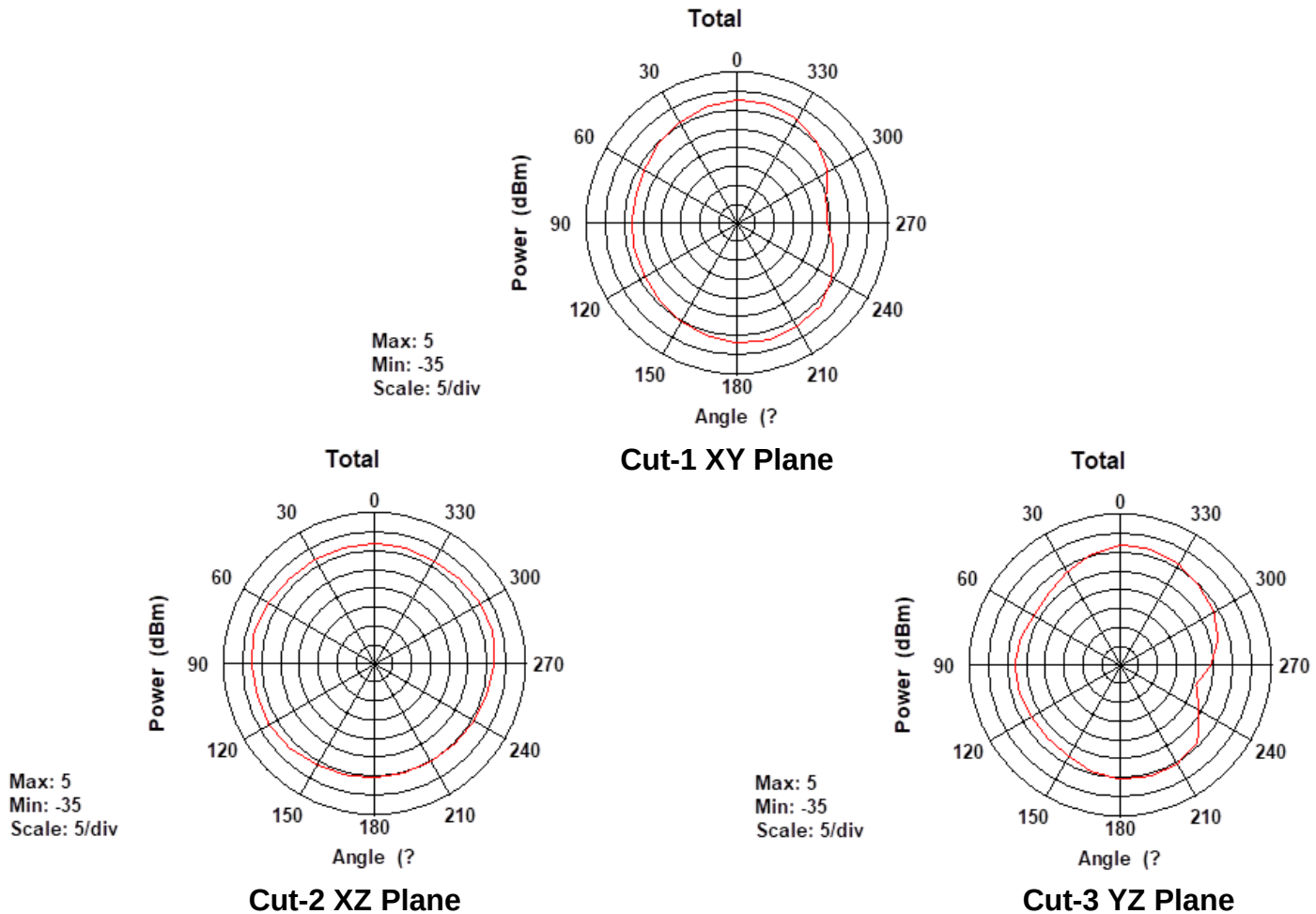
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_723MHz [WWAN AUX]



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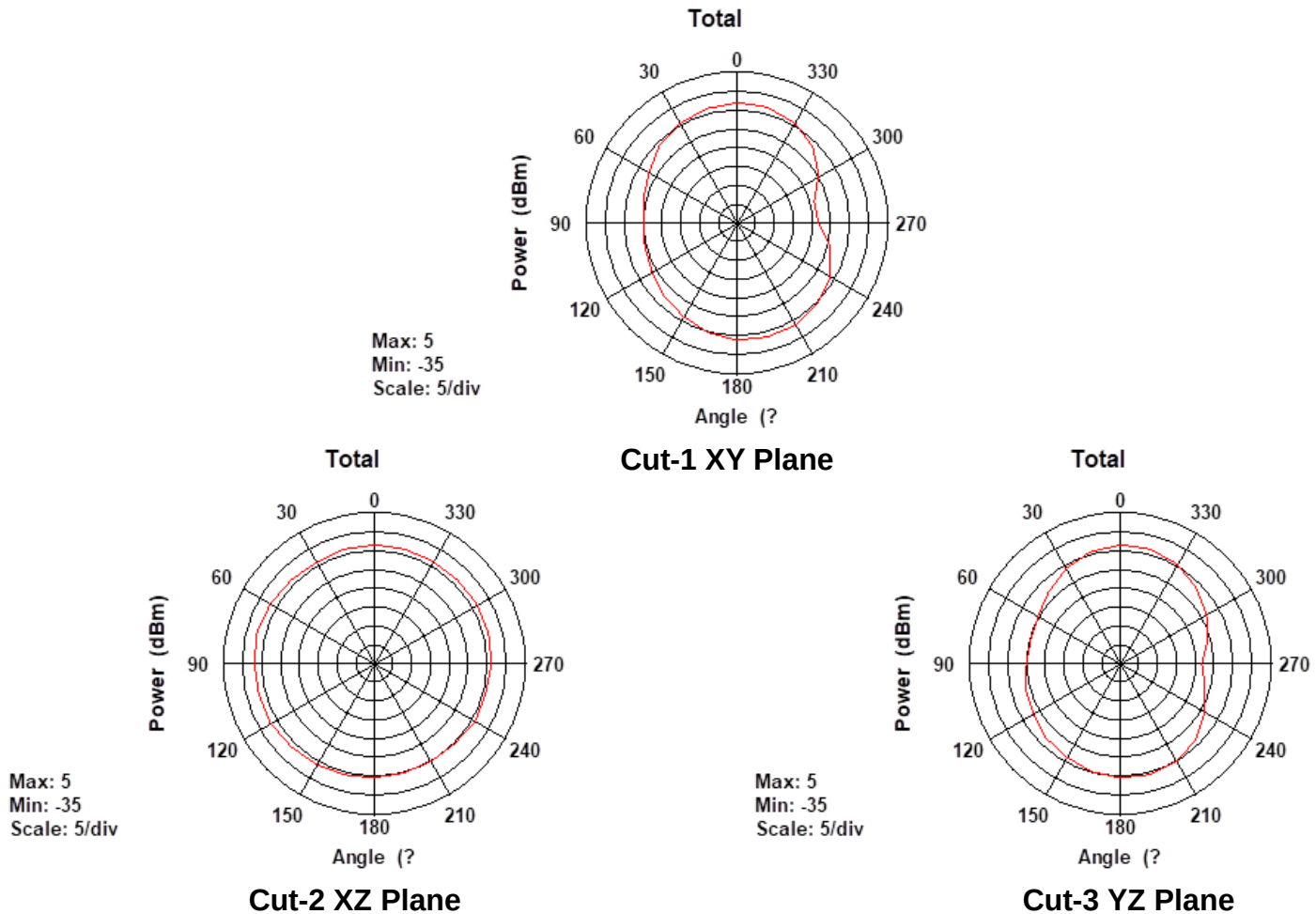
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_738MHz [WWAN AUX]



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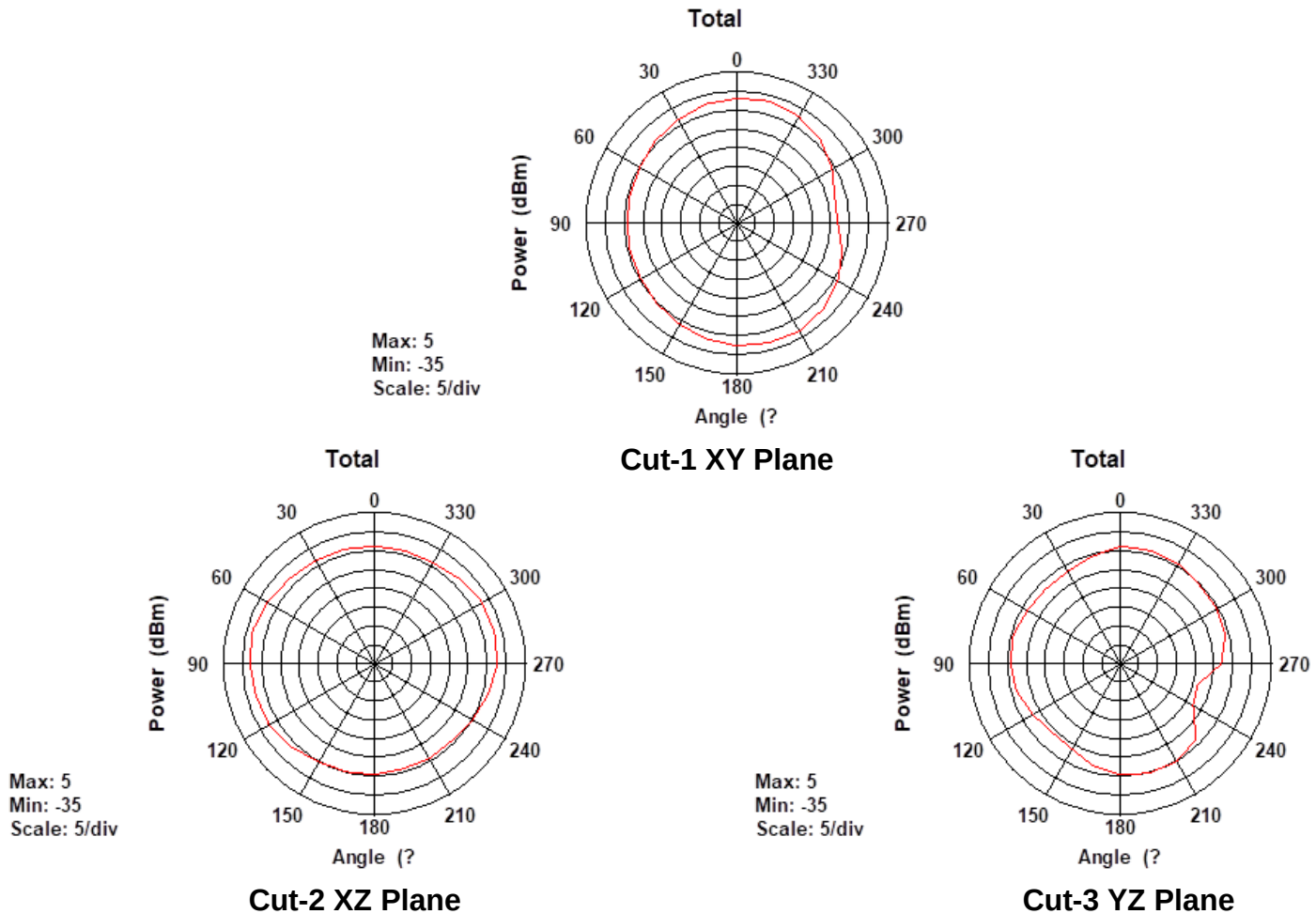
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_746MHz [WWAN AUX]



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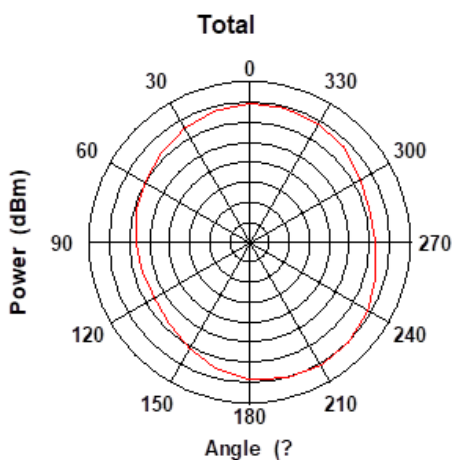
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Series: Swallowtail

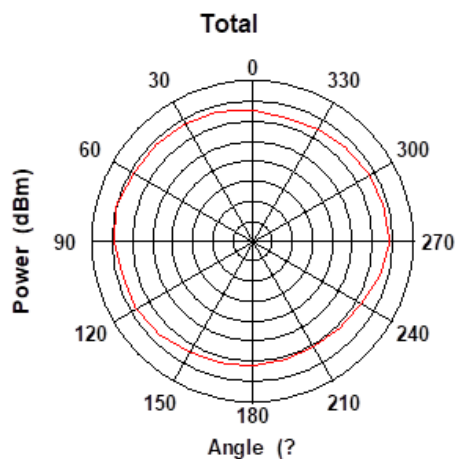
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Manufacturer P/N: TZ29770

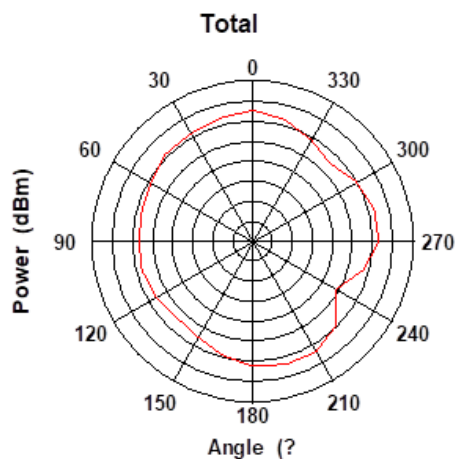
2D Radiation_777MHz [WWAN AUX]



Cut-1 XY Plane



Cut-2 XZ Plane



Cut-3 YZ Plane

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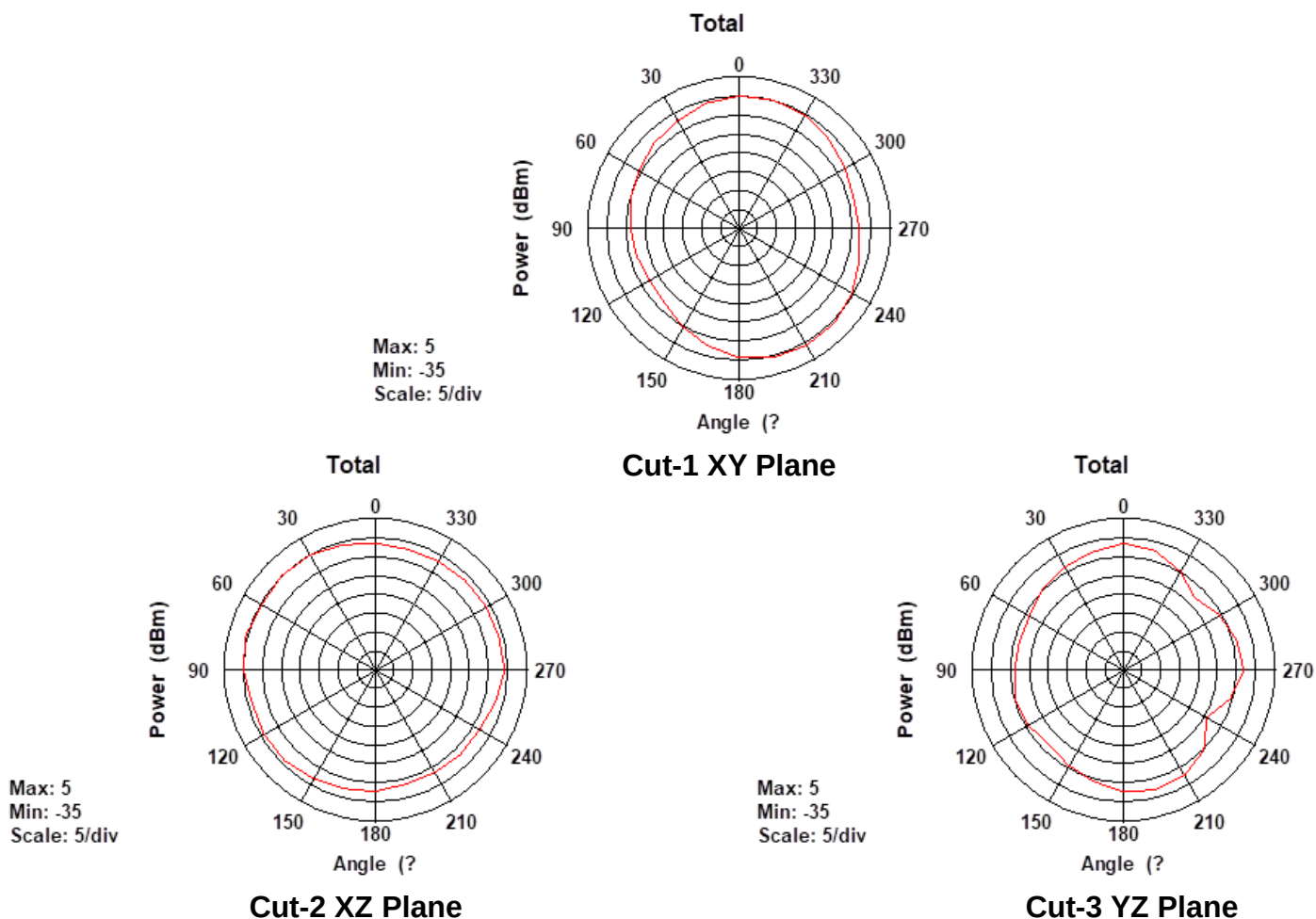
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_787MHz [WWAN AUX]



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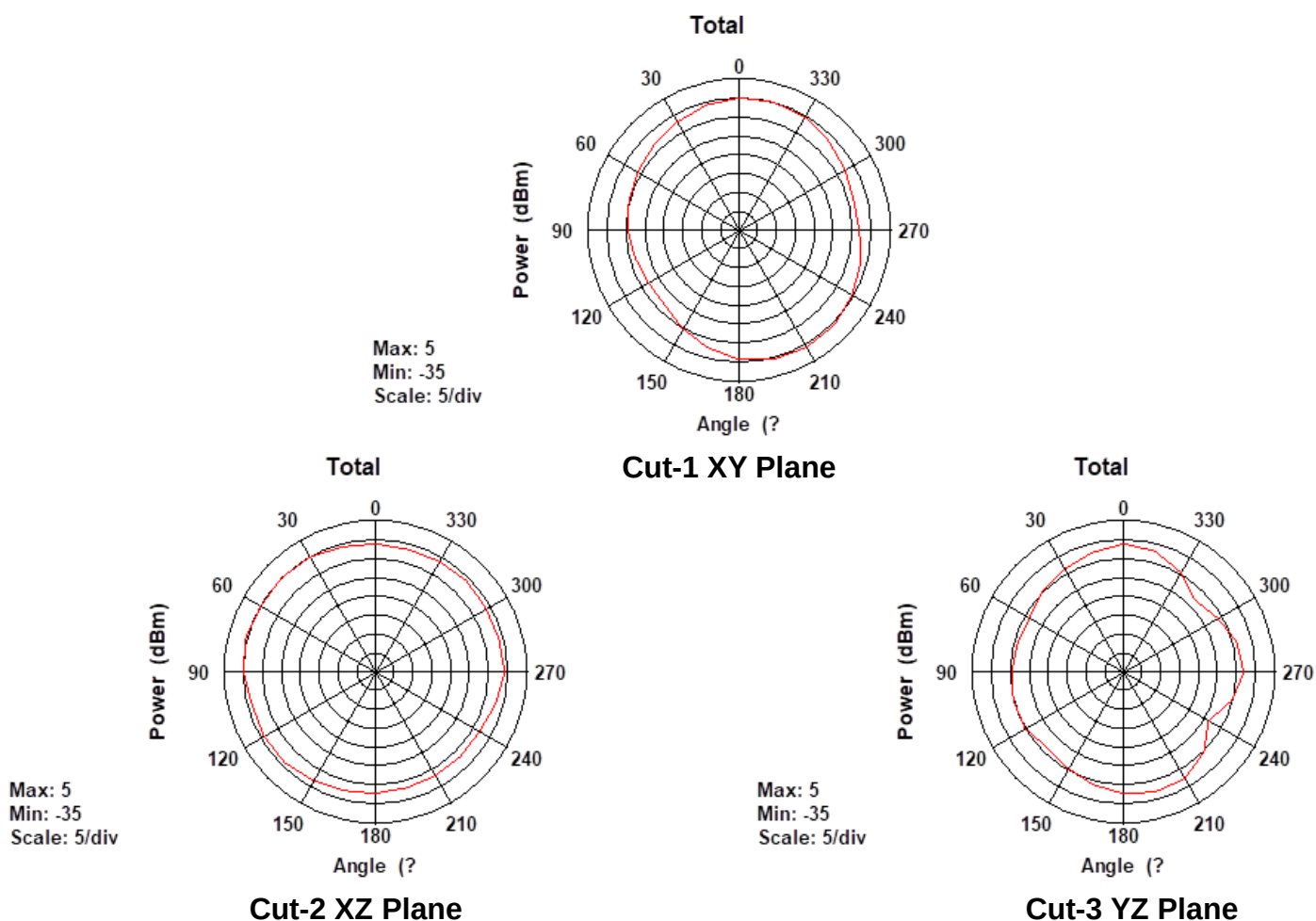
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

2D Radiation_791MHz [WWAN AUX]



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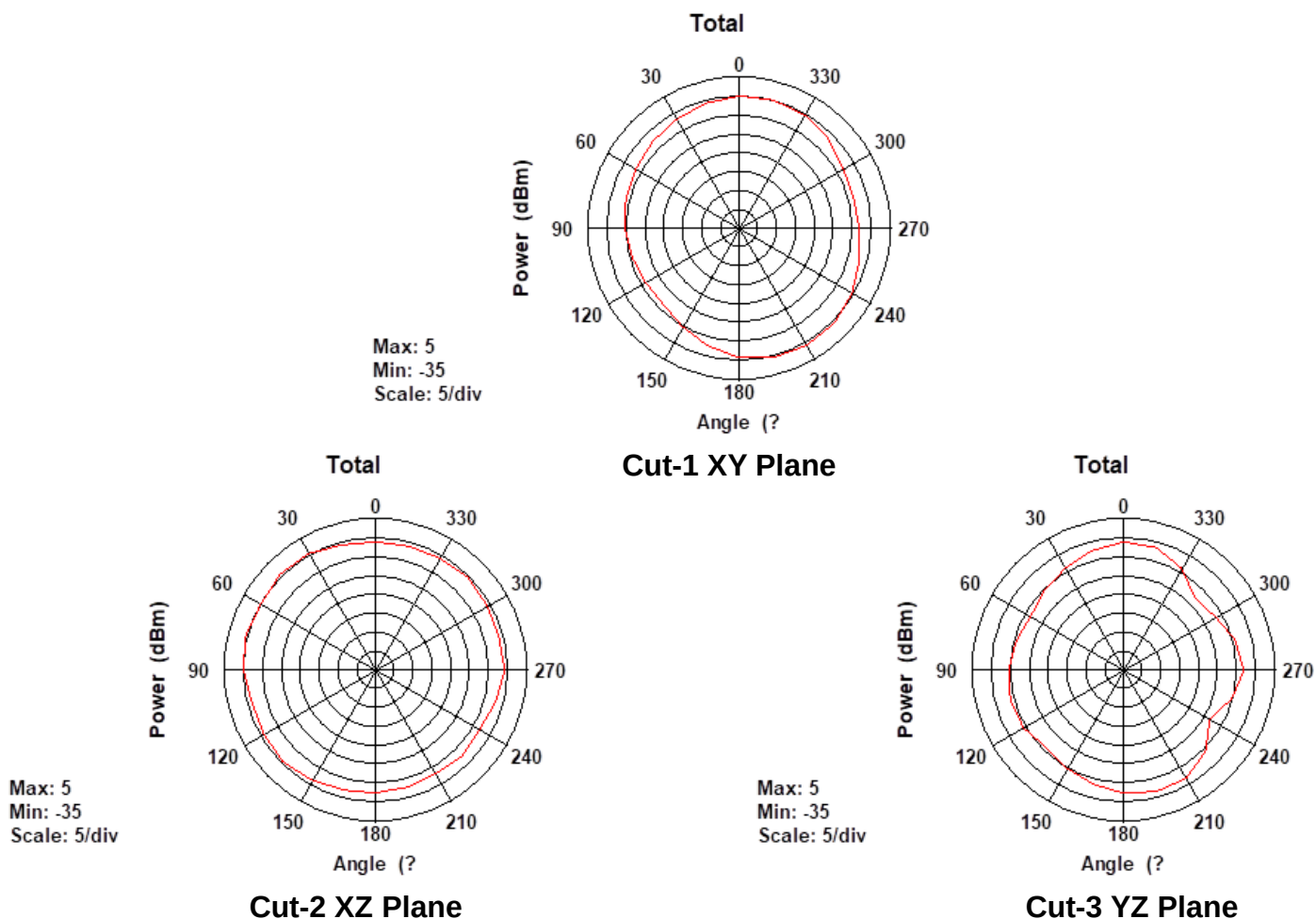
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_798MHz [WWAN AUX]



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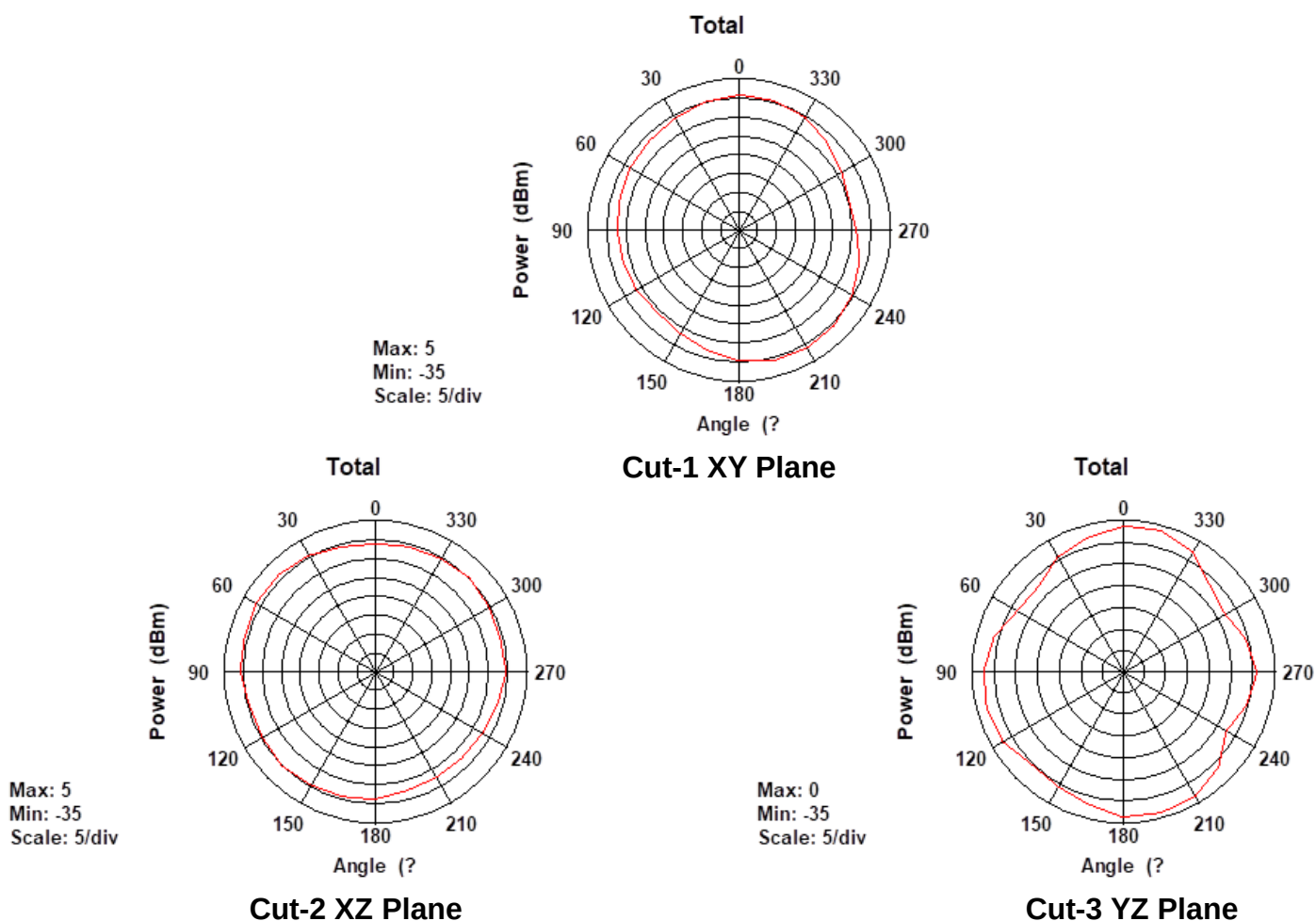
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

2D Radiation_824MHz [WWAN AUX]



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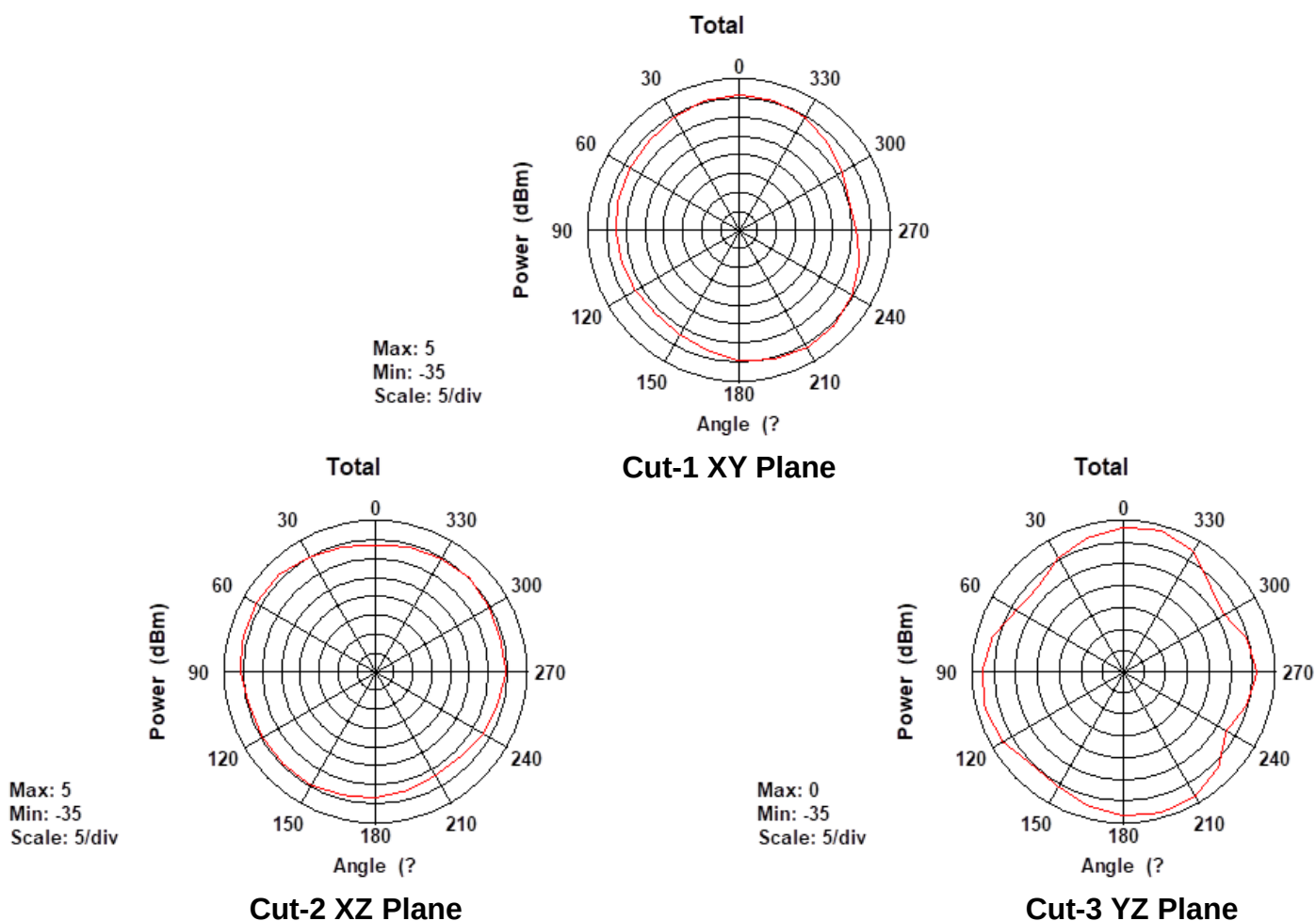
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_830MHz [WWAN AUX]



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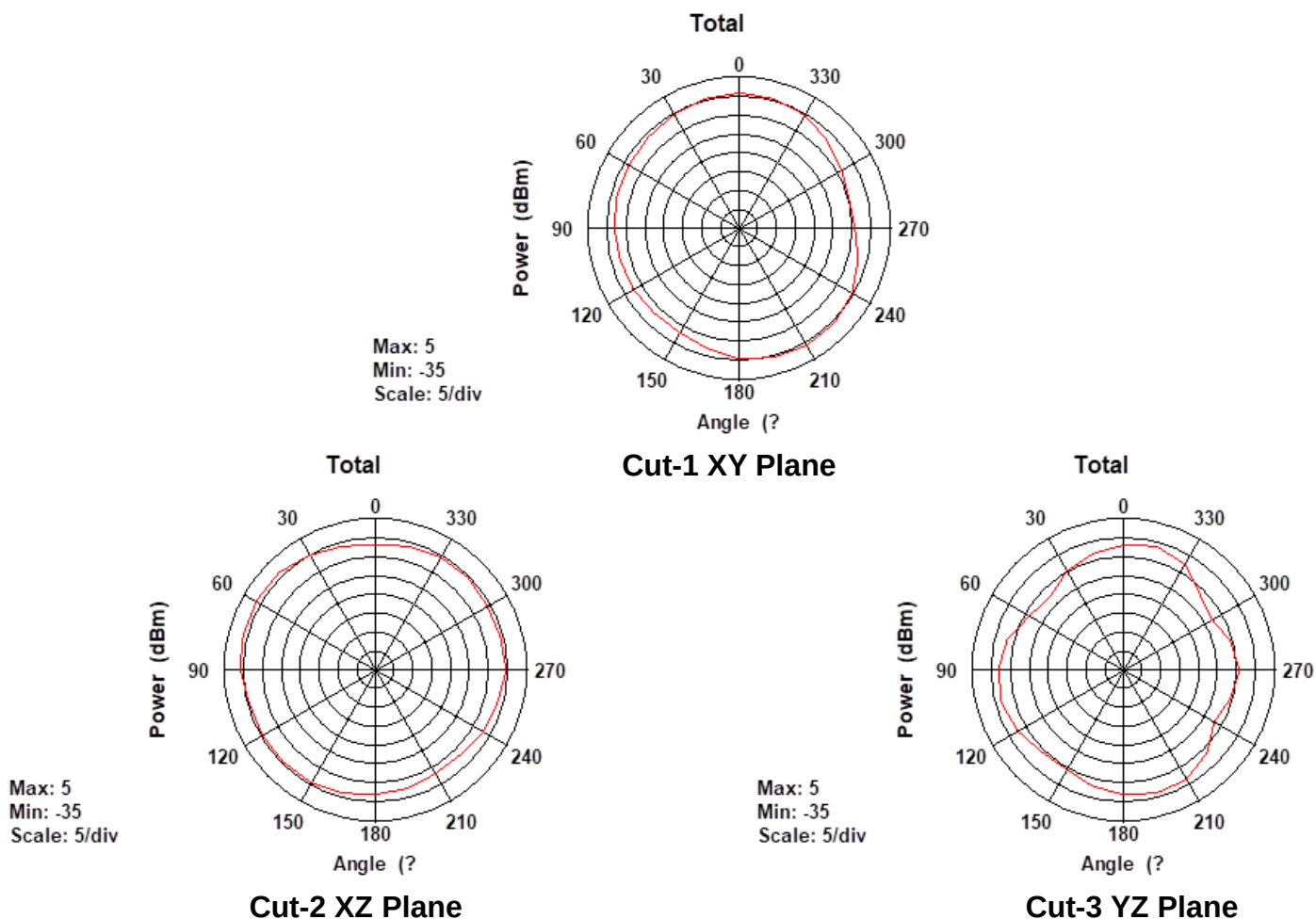
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_837MHz [WWAN AUX]



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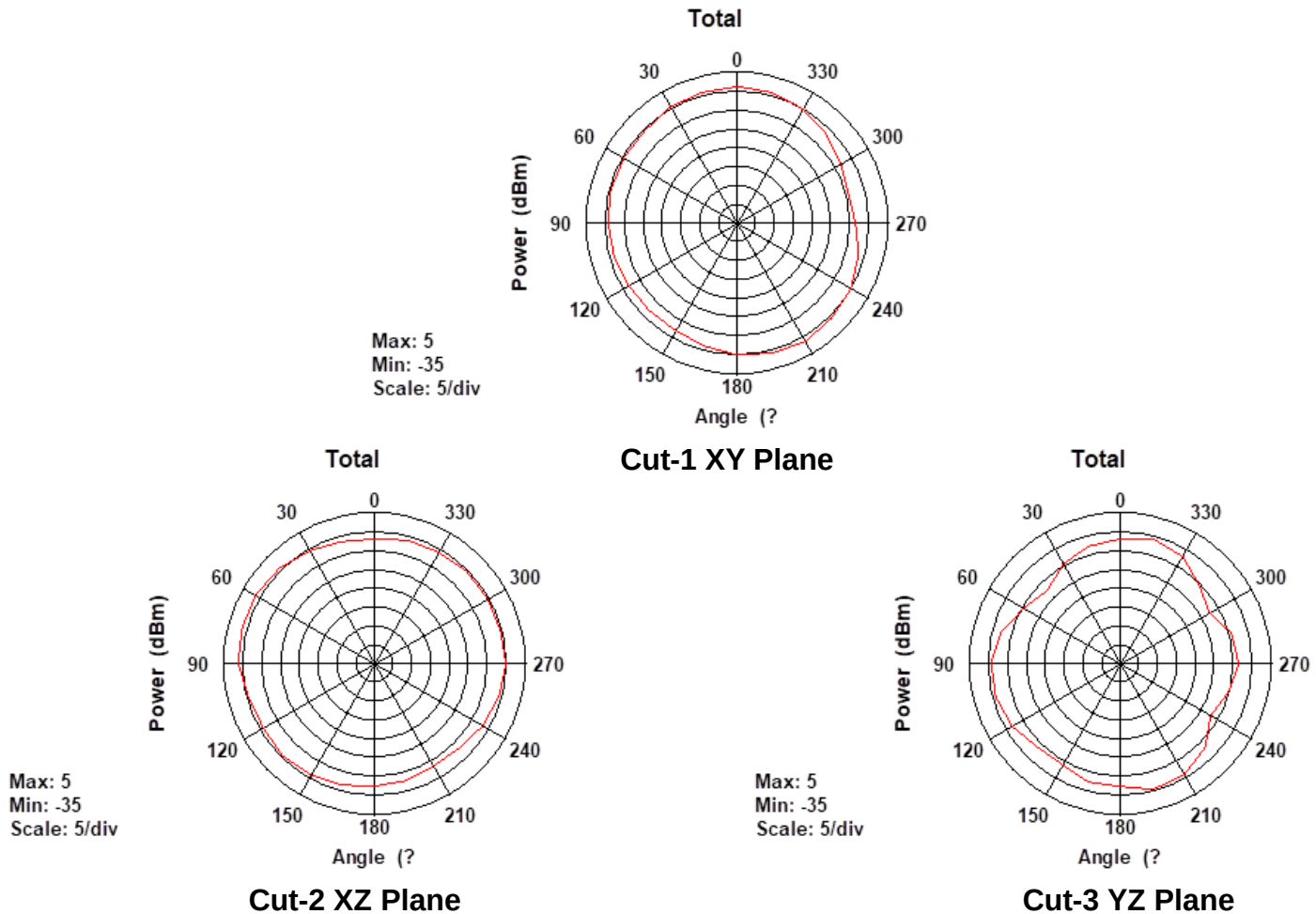
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_845MHz [WWAN AUX]



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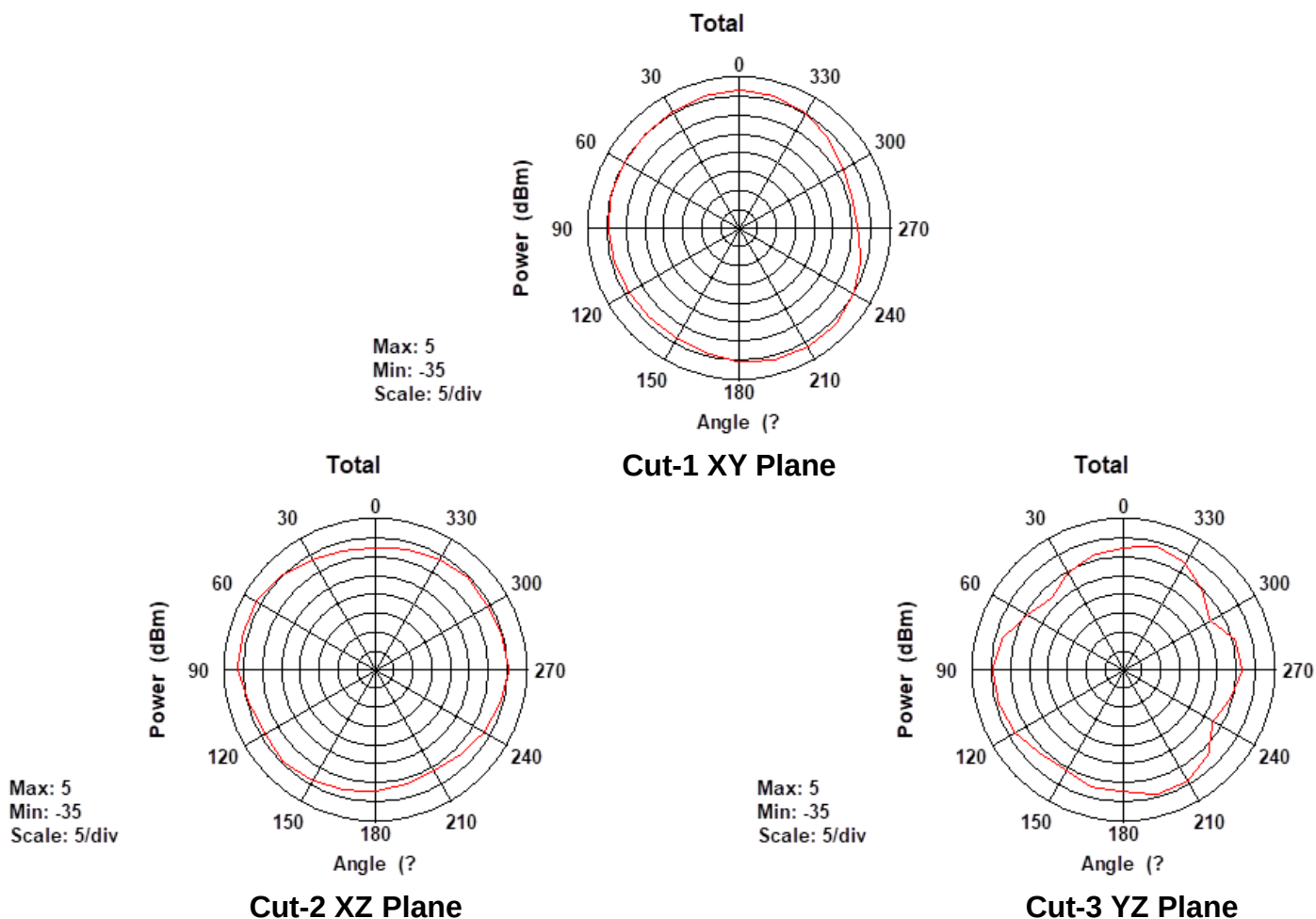
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_859MHz [WWAN AUX]



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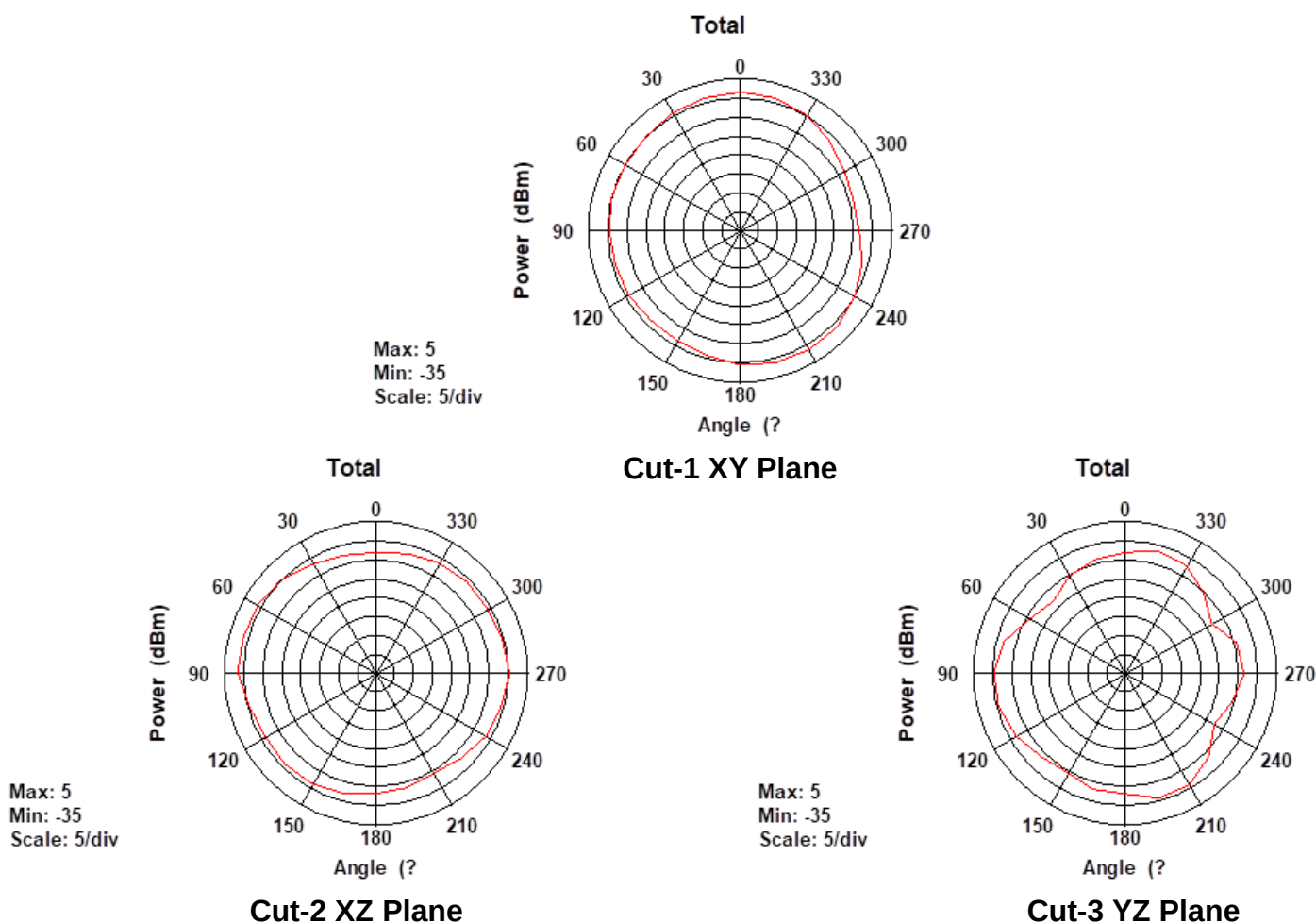
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

2D Radiation_862MHz [WWAN AUX]



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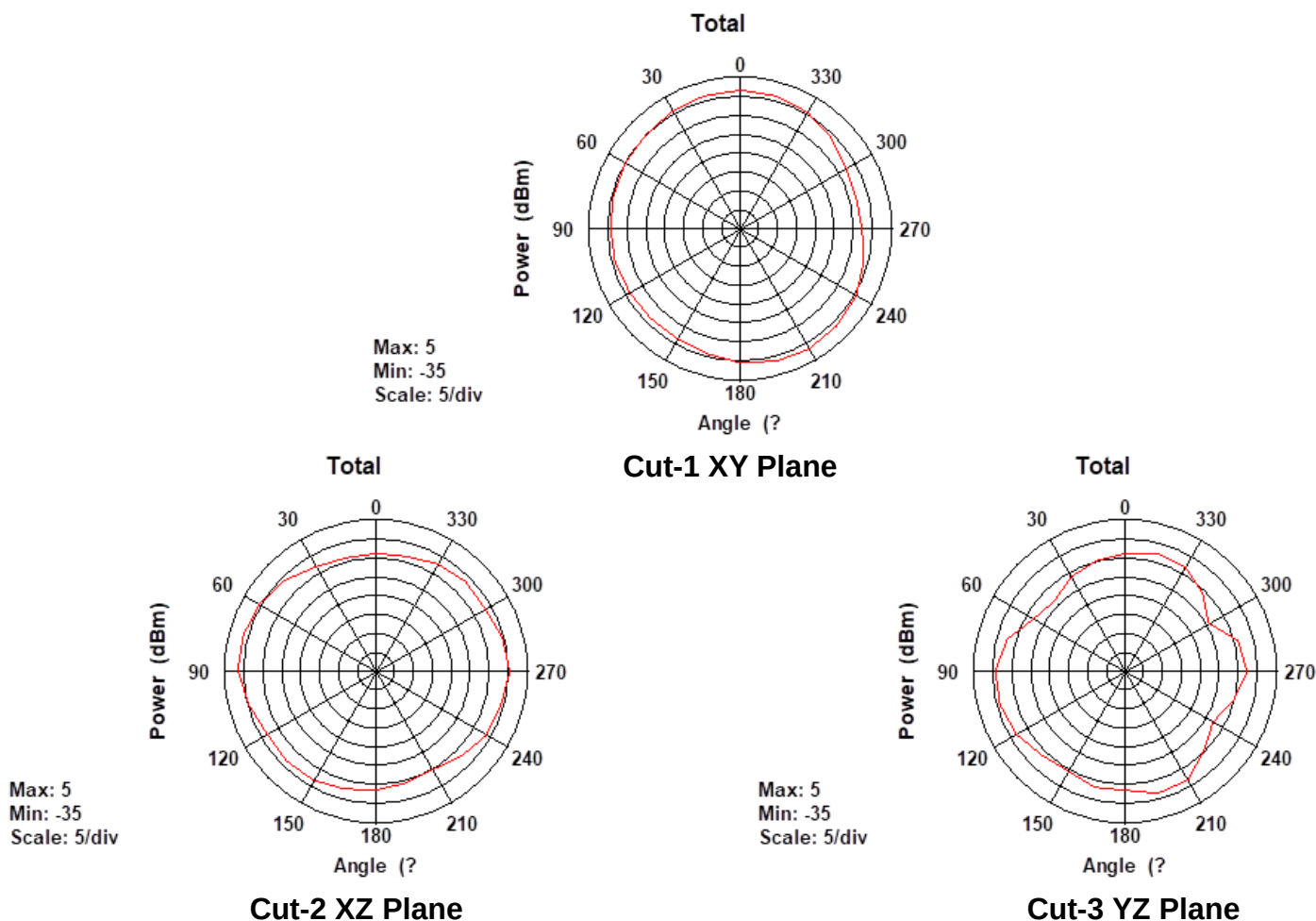
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_880MHz [WWAN AUX]



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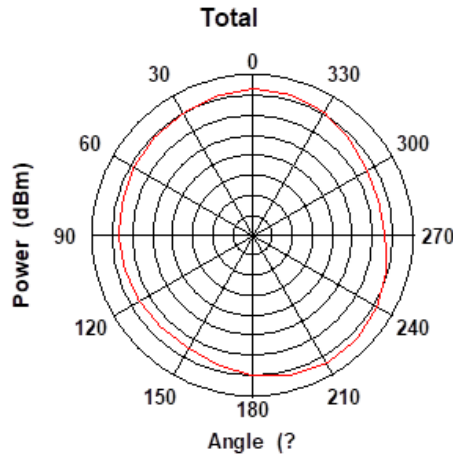
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Series: Swallowtail

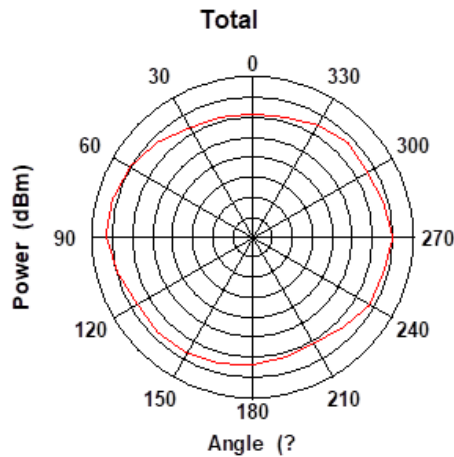
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Manufacturer P/N: TZ29770

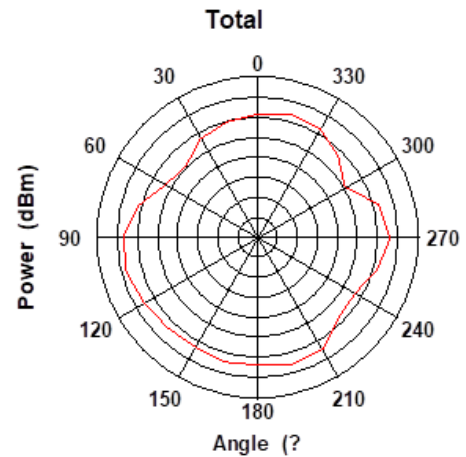
2D Radiation_894MHz [WWAN AUX]



Cut-1 XY Plane



Cut-2 XZ Plane



Cut-3 YZ Plane

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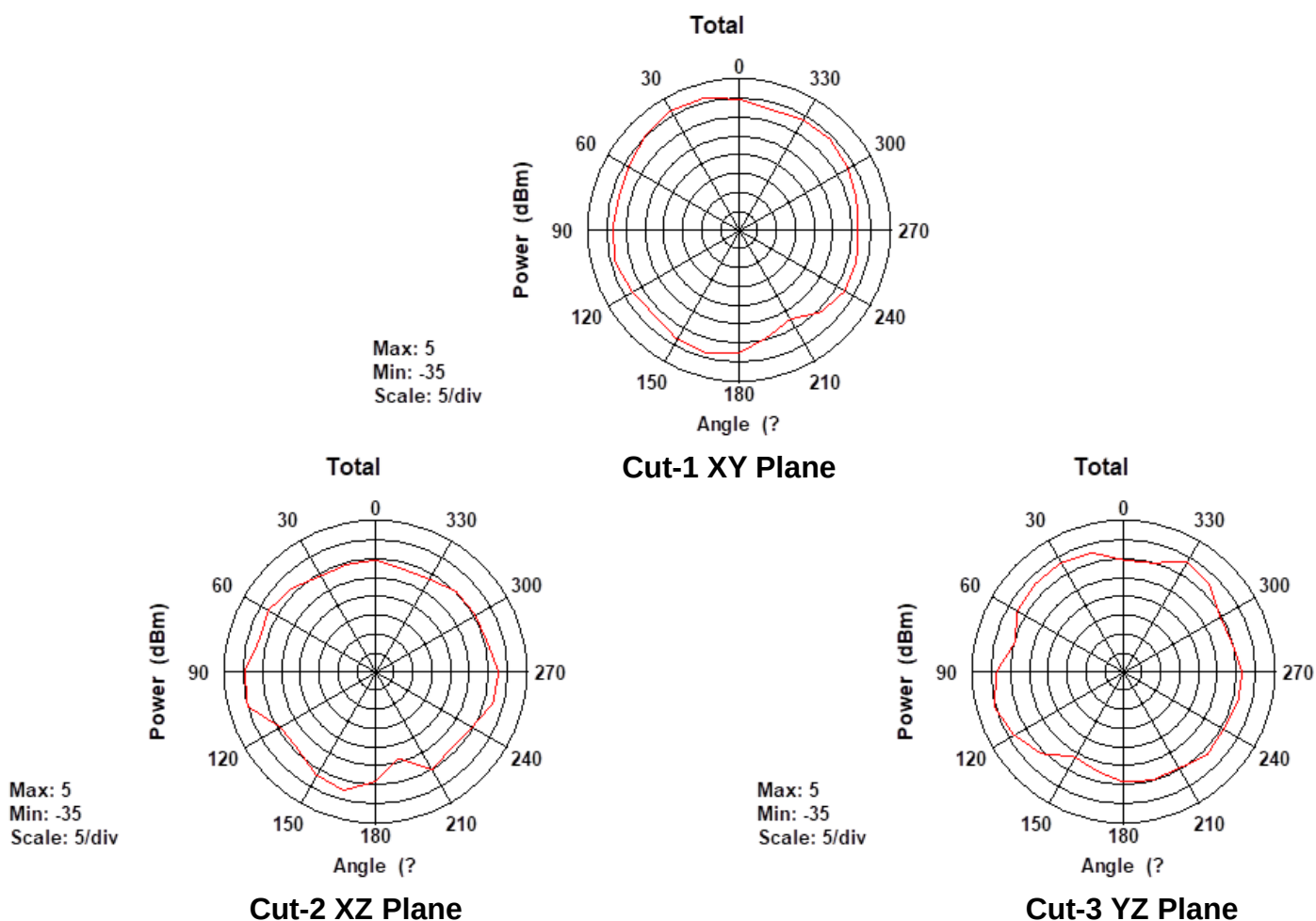
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_1710MHz [WWAN AUX]



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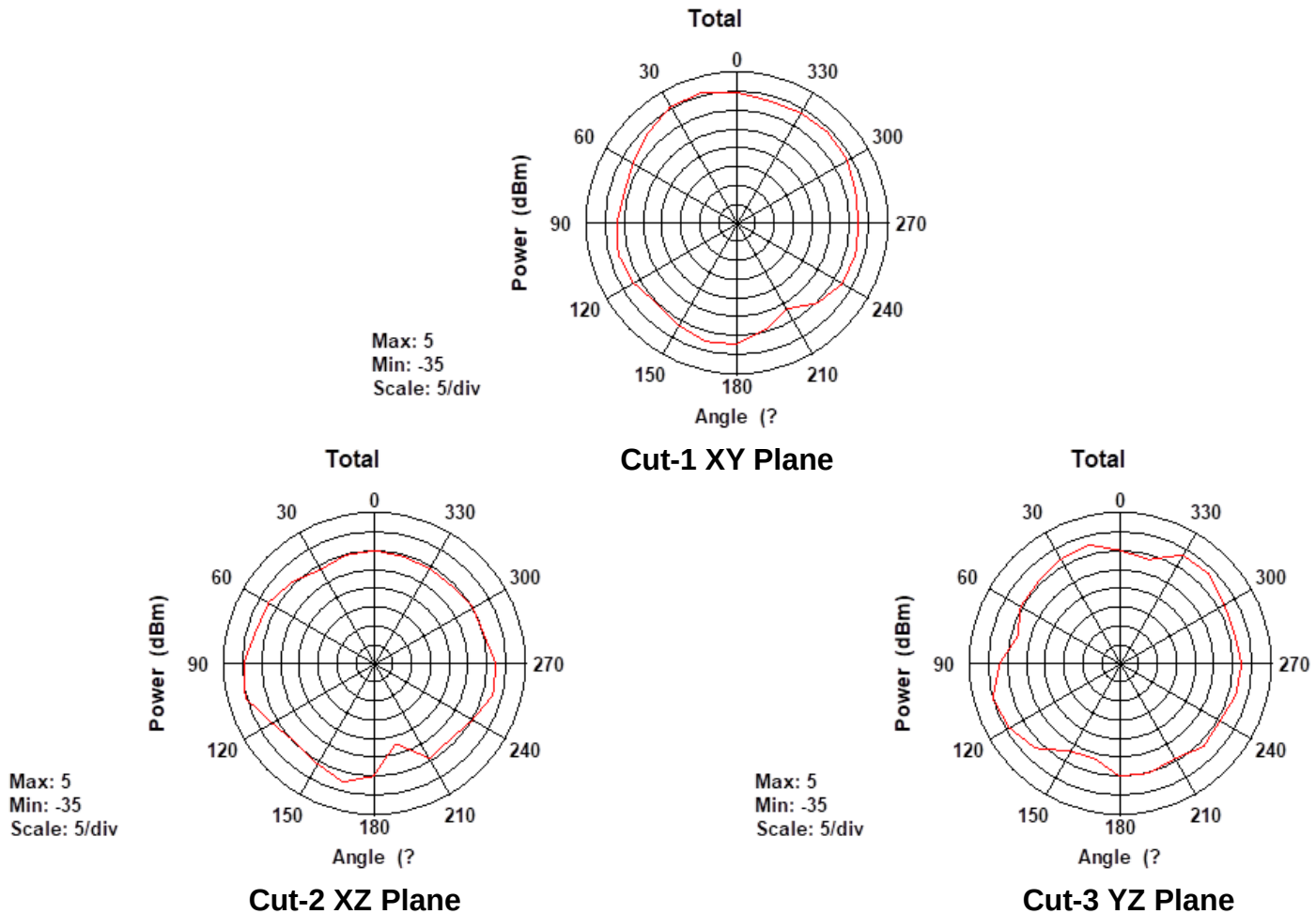
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_1750MHz [WWAN AUX]



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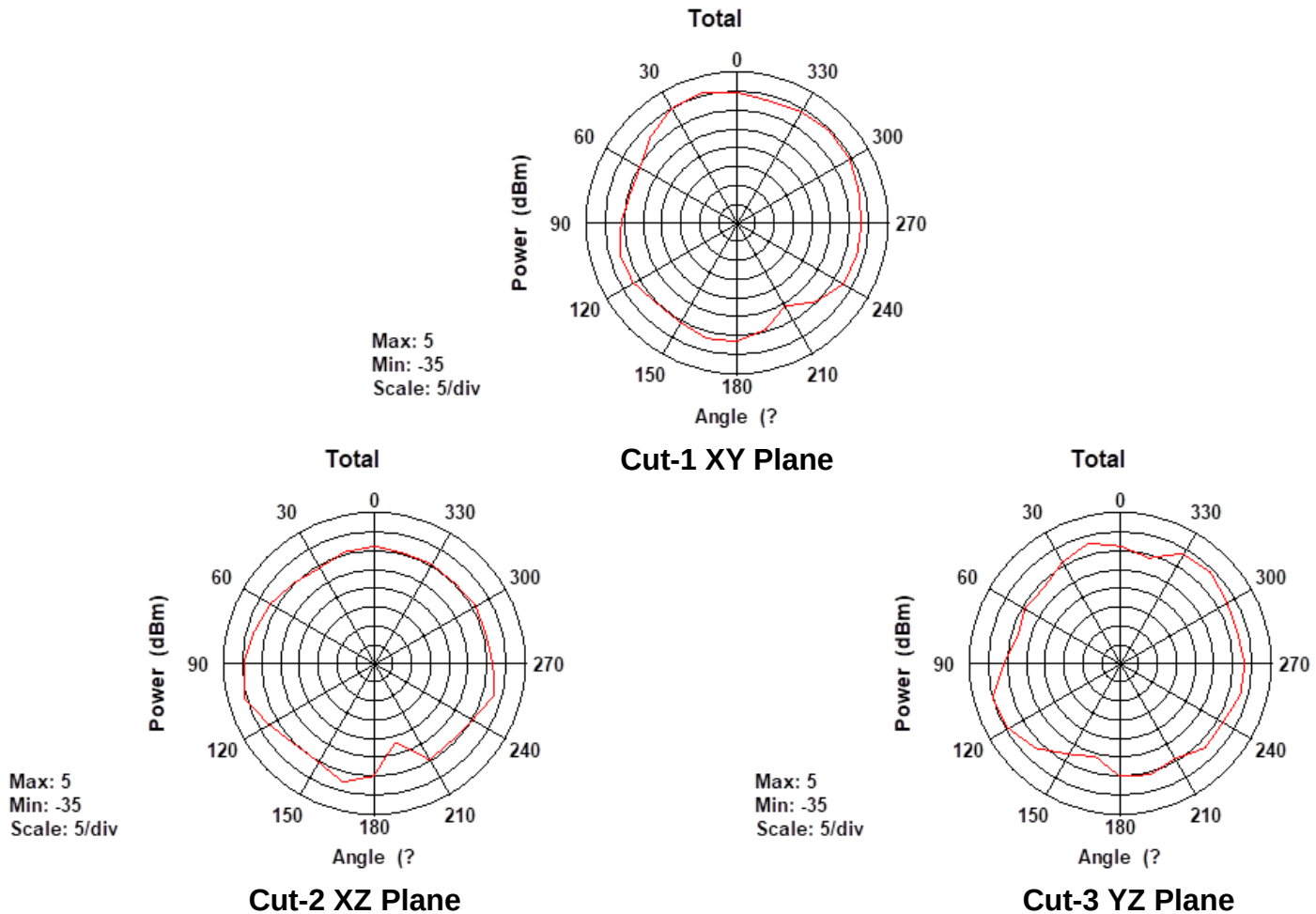
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_1780MHz [WWAN AUX]



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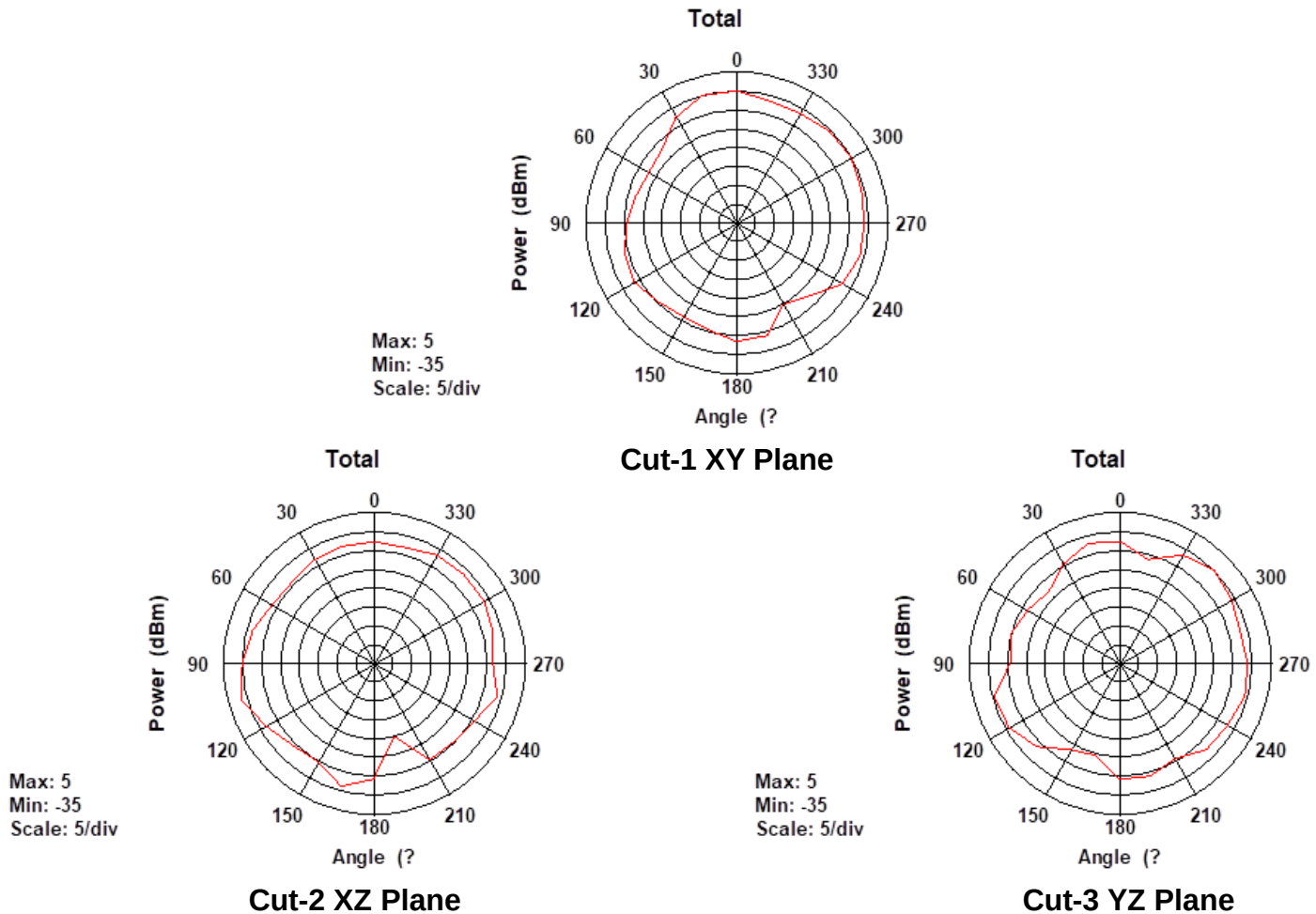
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_1850MHz [WWAN AUX]



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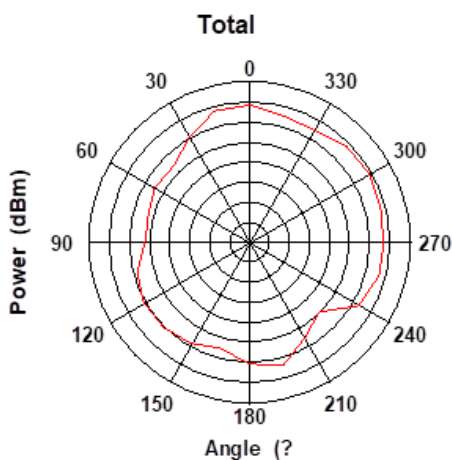
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Series: Swallowtail

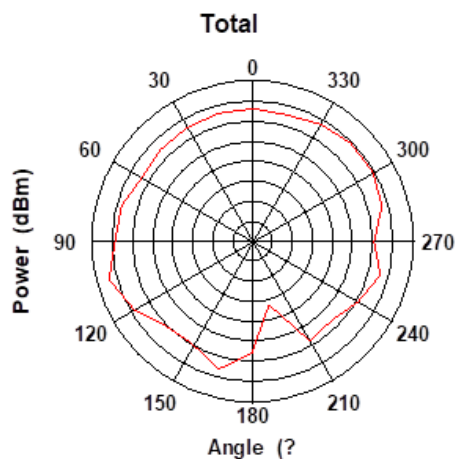
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Manufacturer P/N: TZ29770

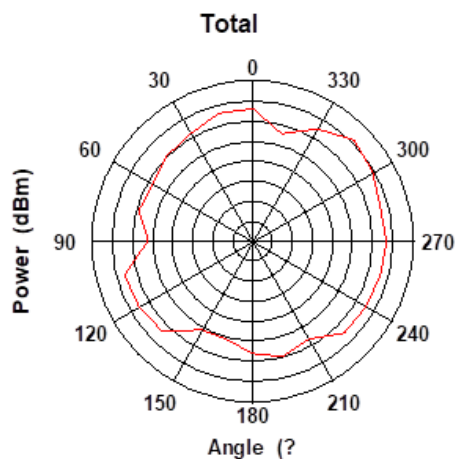
2D Radiation_1880MHz [WWAN AUX]



Cut-1 XY Plane



Cut-2 XZ Plane



Cut-3 YZ Plane

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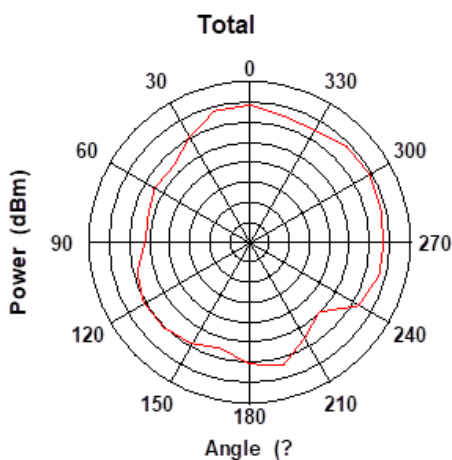
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Series: Swallowtail

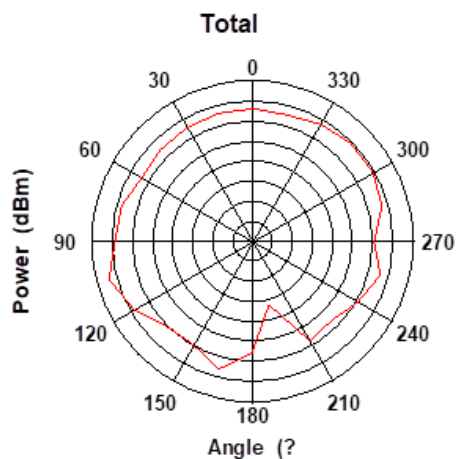
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Manufacturer P/N: TZ29770

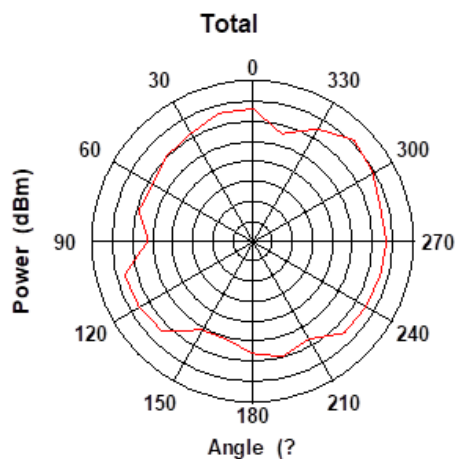
2D Radiation_1900MHz [WWAN AUX]



Cut-1 XY Plane



Cut-2 XZ Plane



Cut-3 YZ Plane

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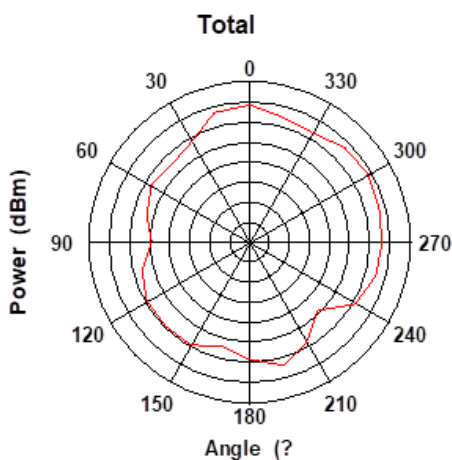
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Series: Swallowtail

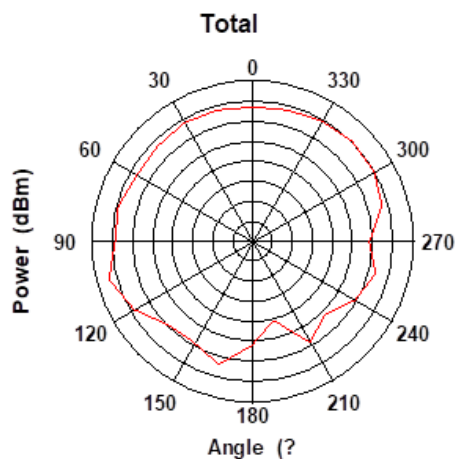
Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

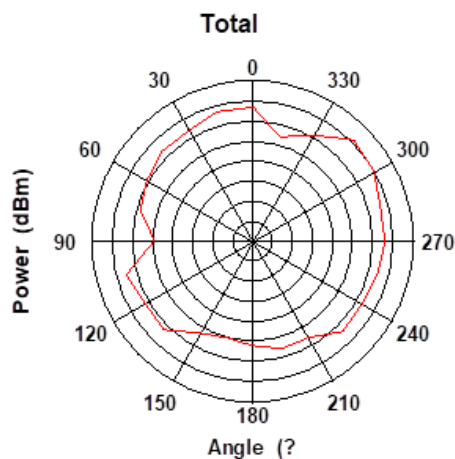
2D Radiation_1930MHz [WWAN AUX]



Cut-1 XY Plane



Cut-2 XZ Plane



Cut-3 YZ Plane

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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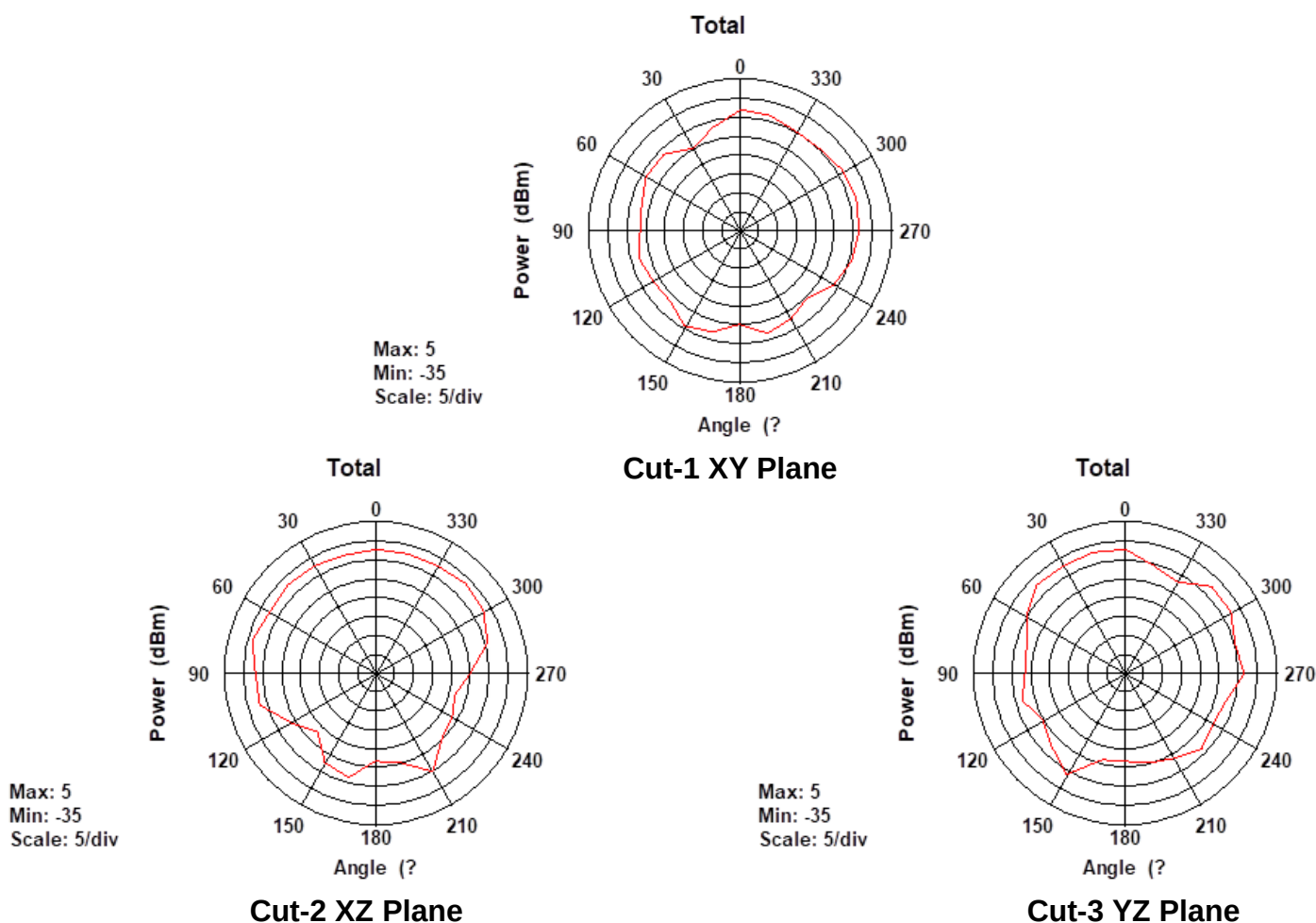
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_2010MHz [WWAN AUX]



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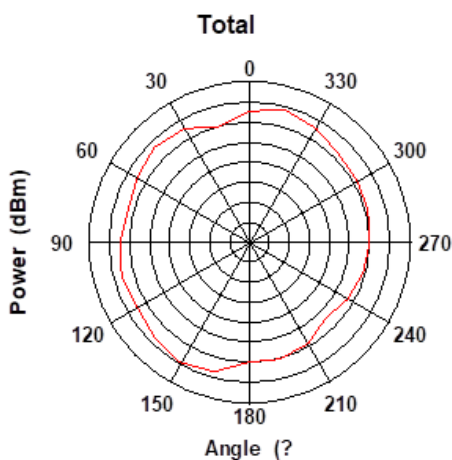
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Series: Swallowtail

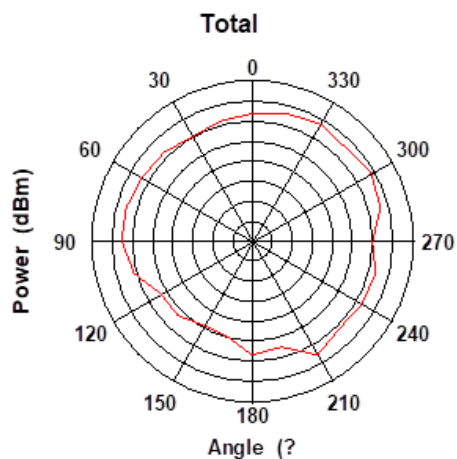
Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

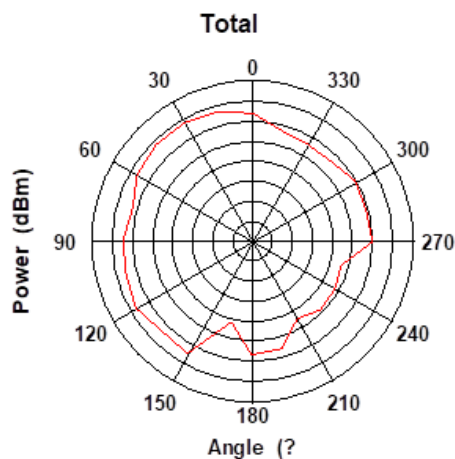
2D Radiation_2140MHz [WWAN AUX]



Cut-1 XY Plane



Cut-2 XZ Plane



Cut-3 YZ Plane

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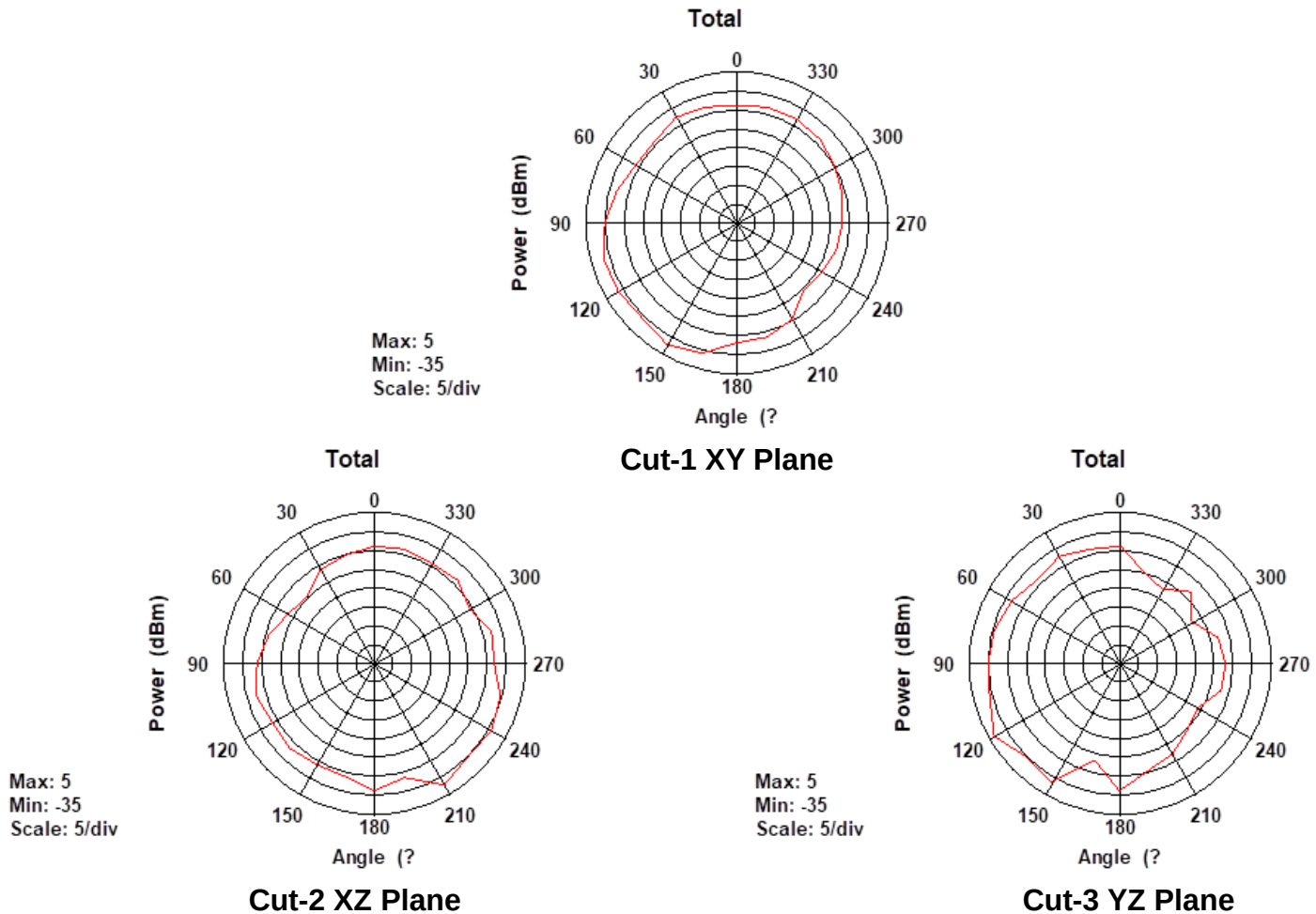
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: T229770

2D Radiation_2300MHz [WWAN AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

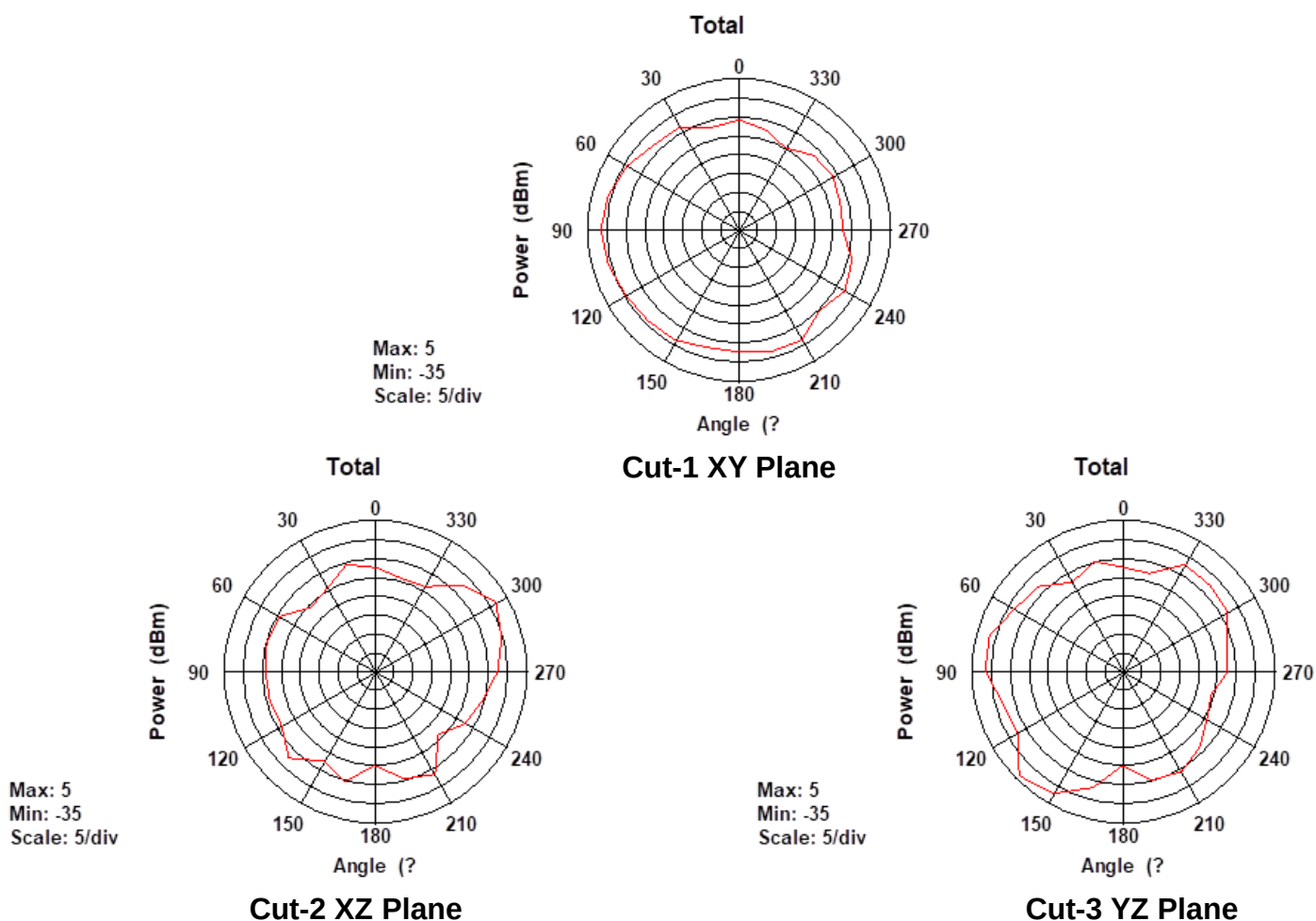
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: T229770

2D Radiation_3500MHz [WWAN AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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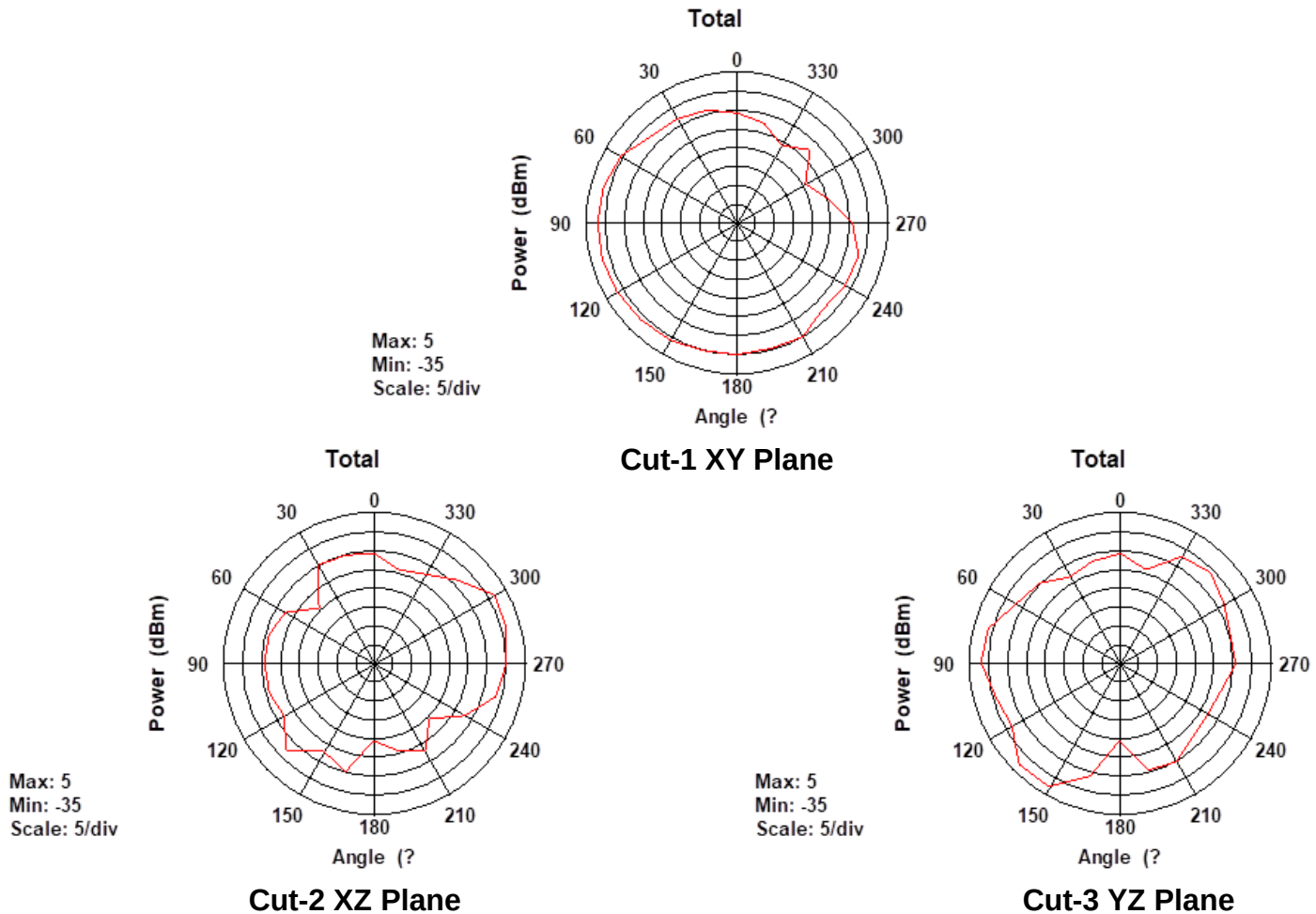
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: T229770

2D Radiation_3600MHz [WWAN AUX]



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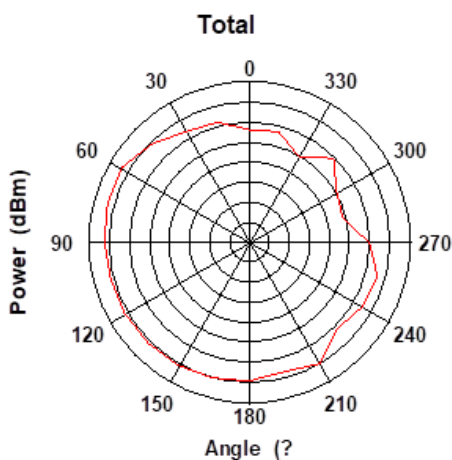
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Series: Swallowtail

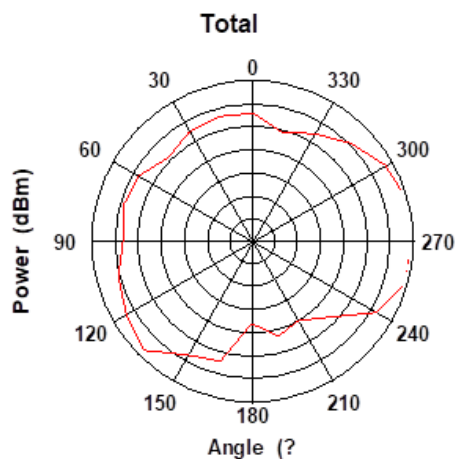
Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

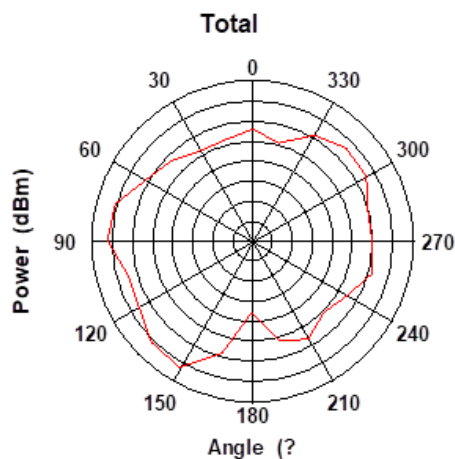
2D Radiation_3700MHz [WWAN AUX]



Cut-1 XY Plane



Cut-2 XZ Plane



Cut-3 YZ Plane

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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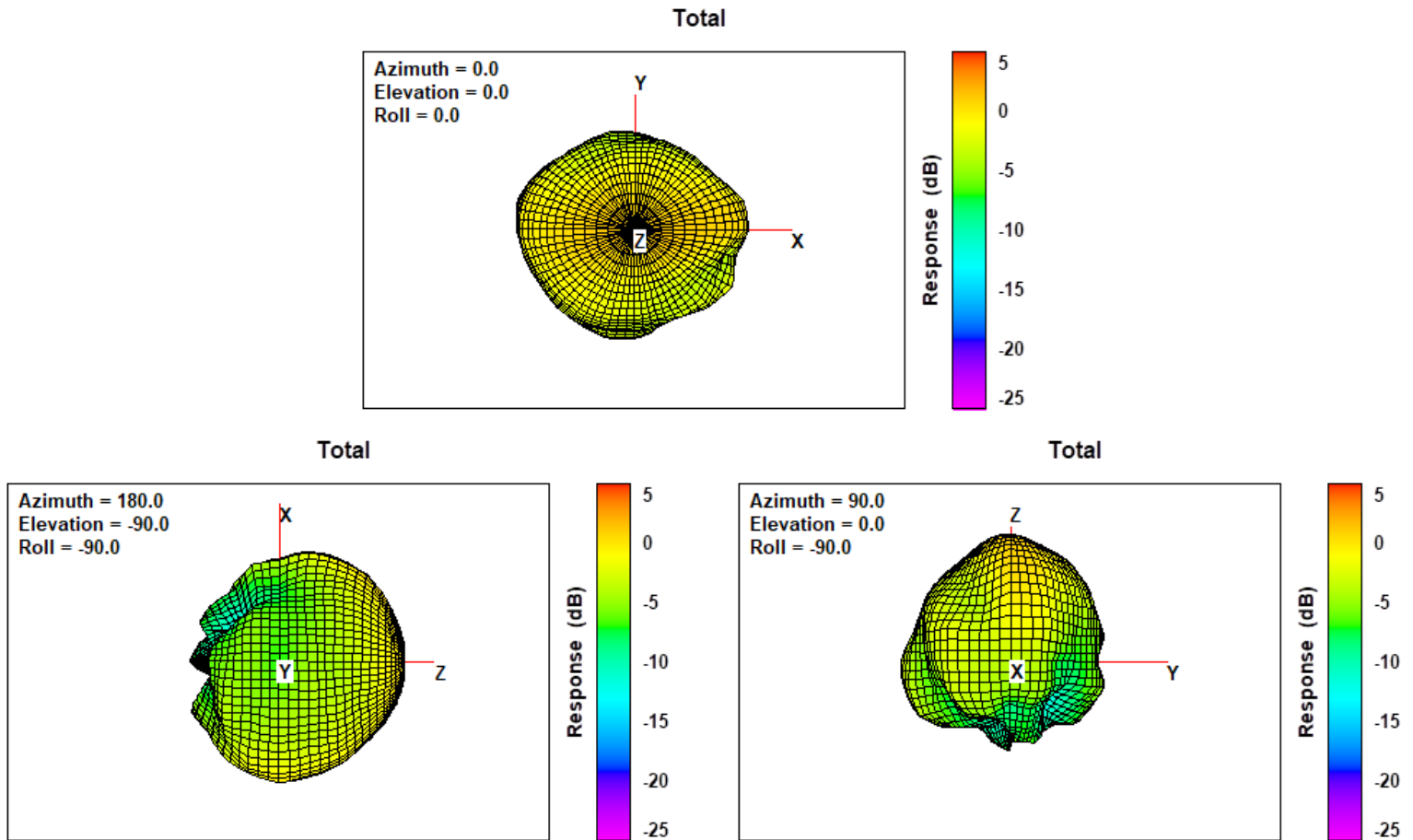
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_2400MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

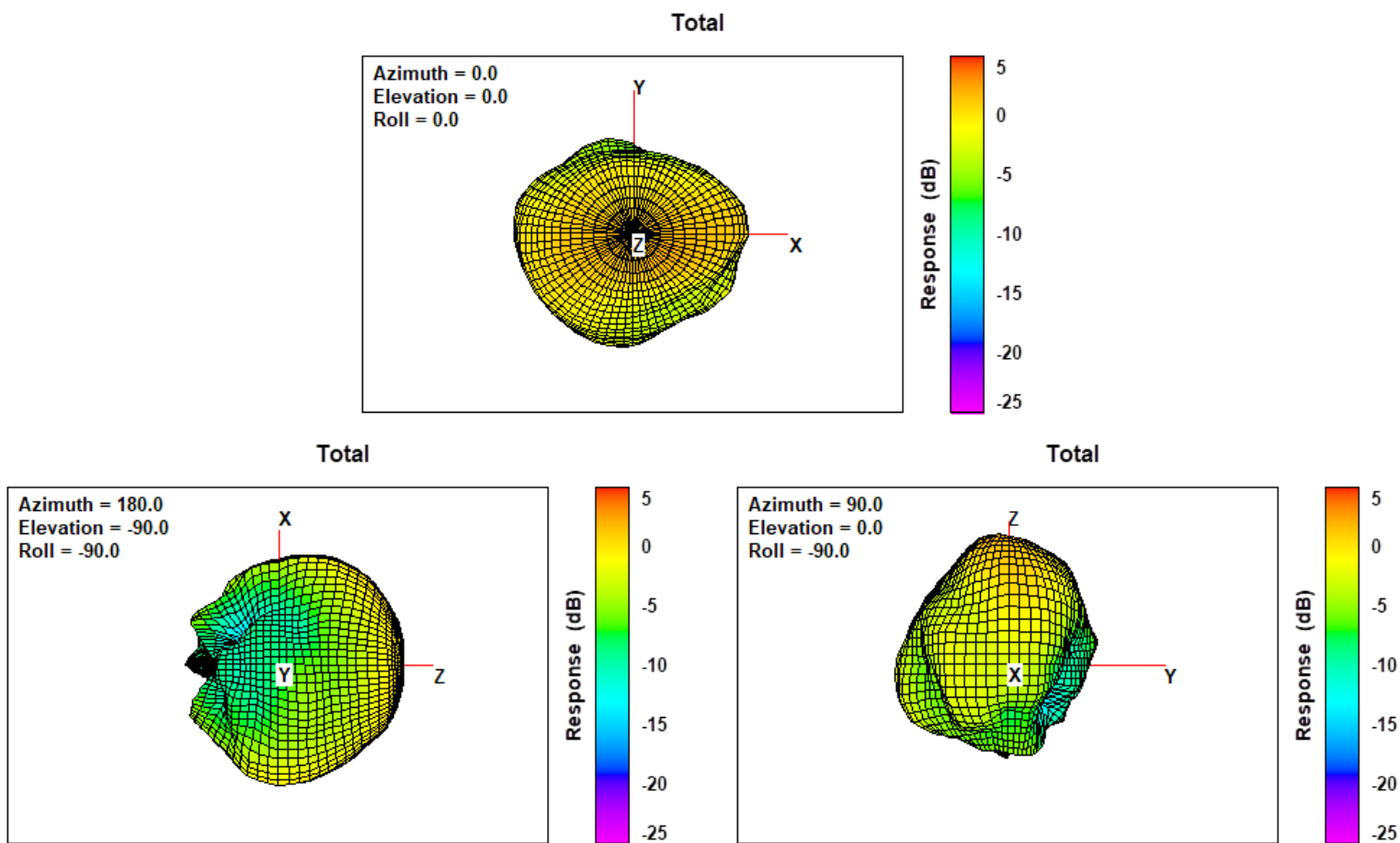
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_2450MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

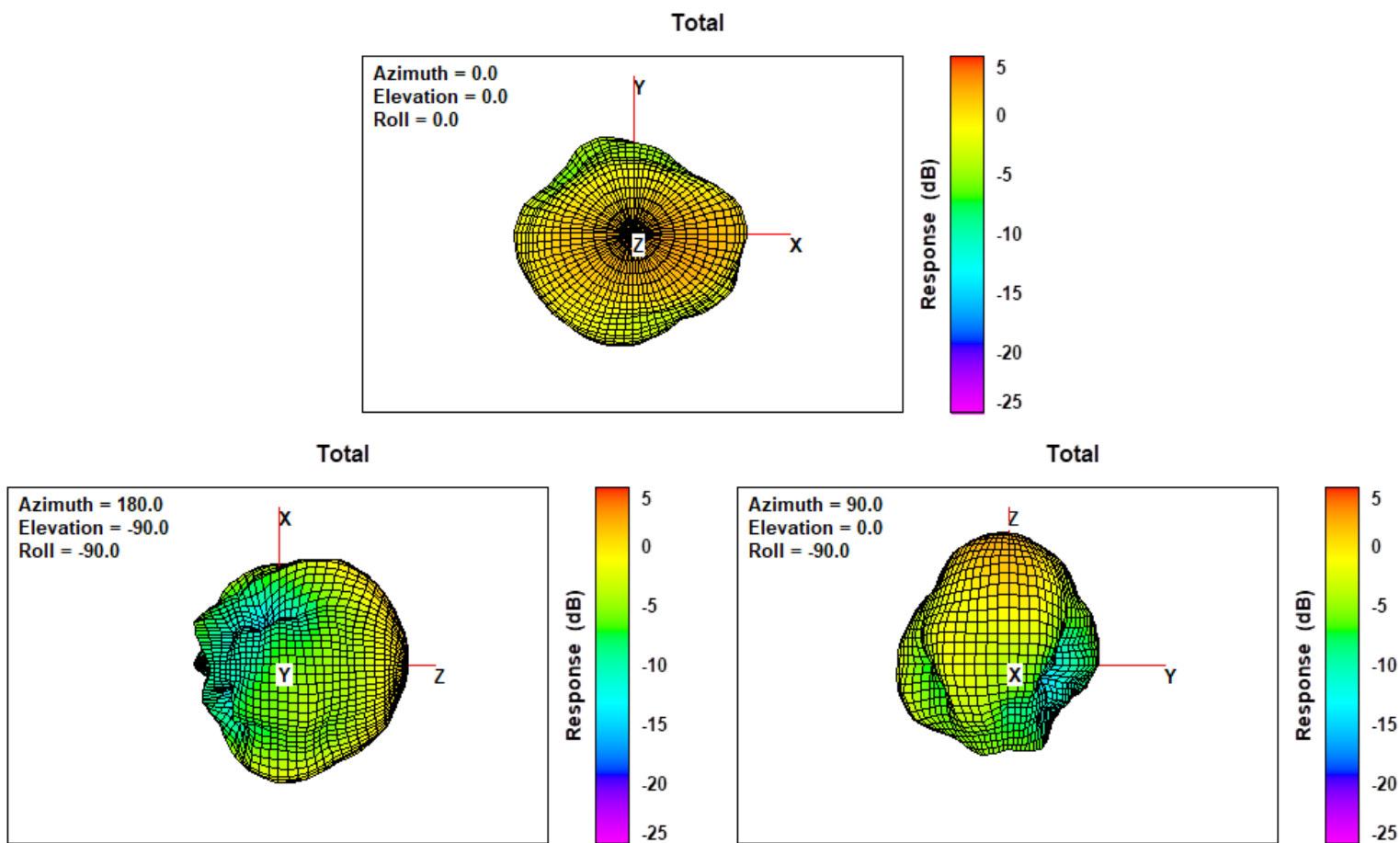
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_2500MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

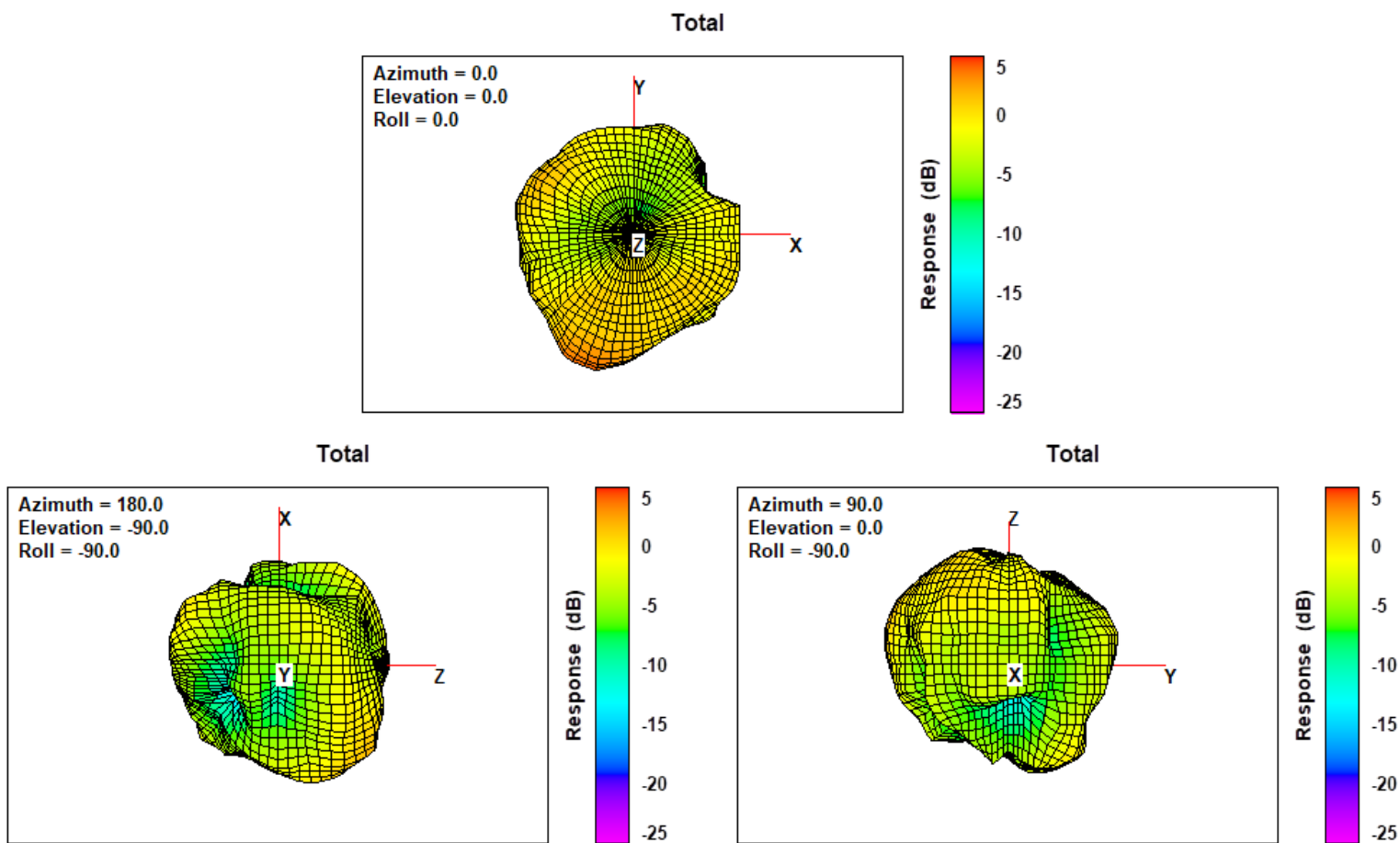
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_5150MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

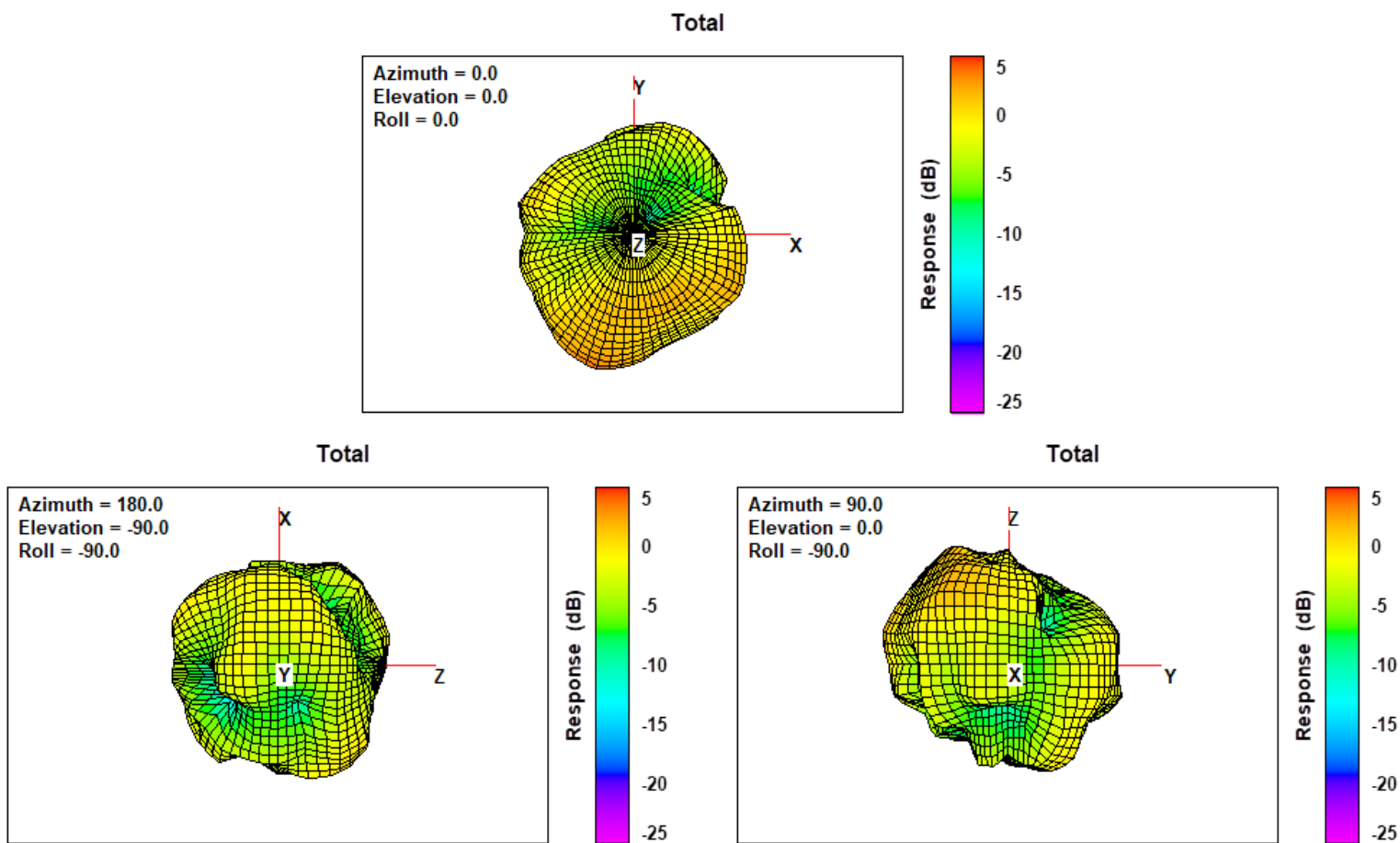
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_5250MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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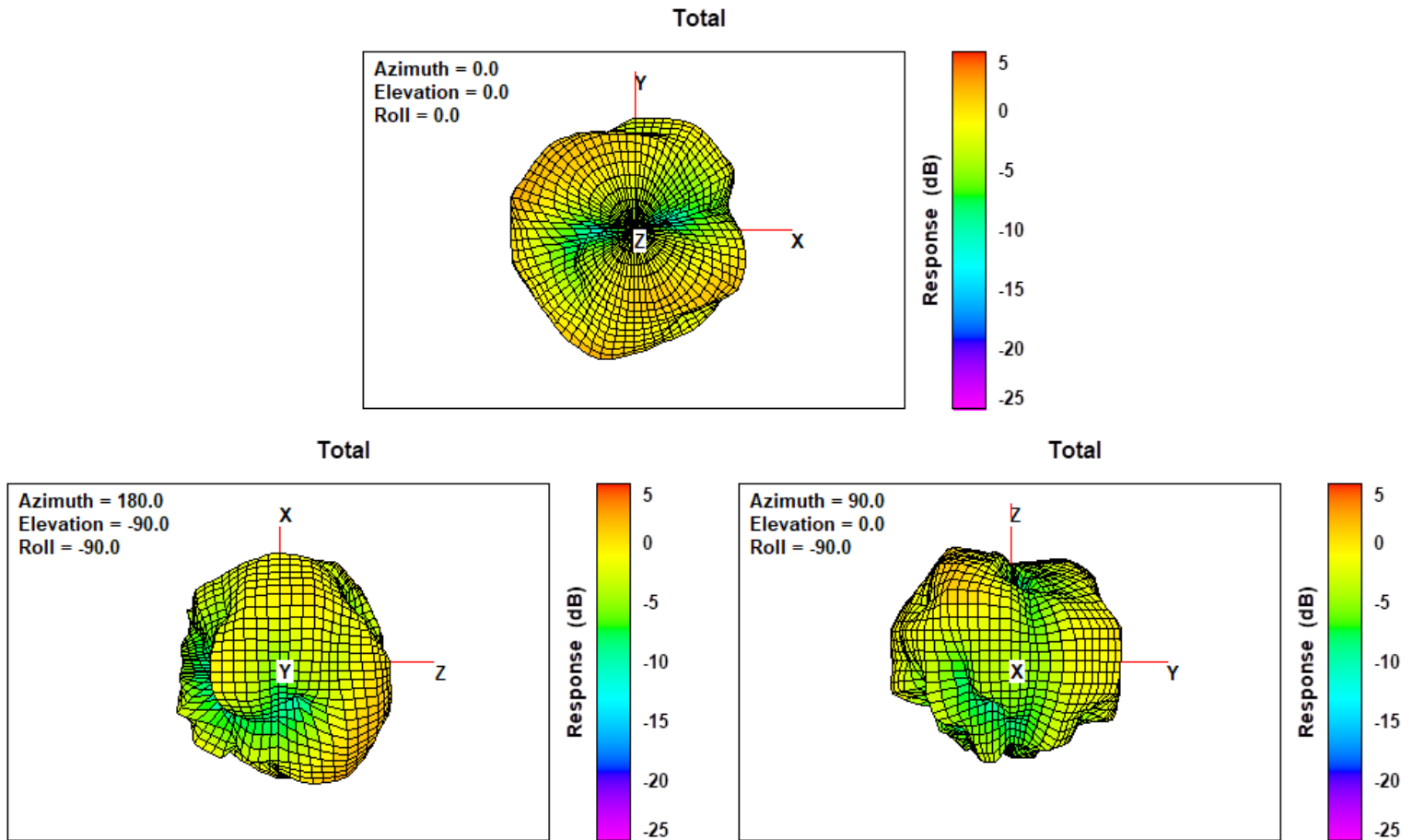
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_5350MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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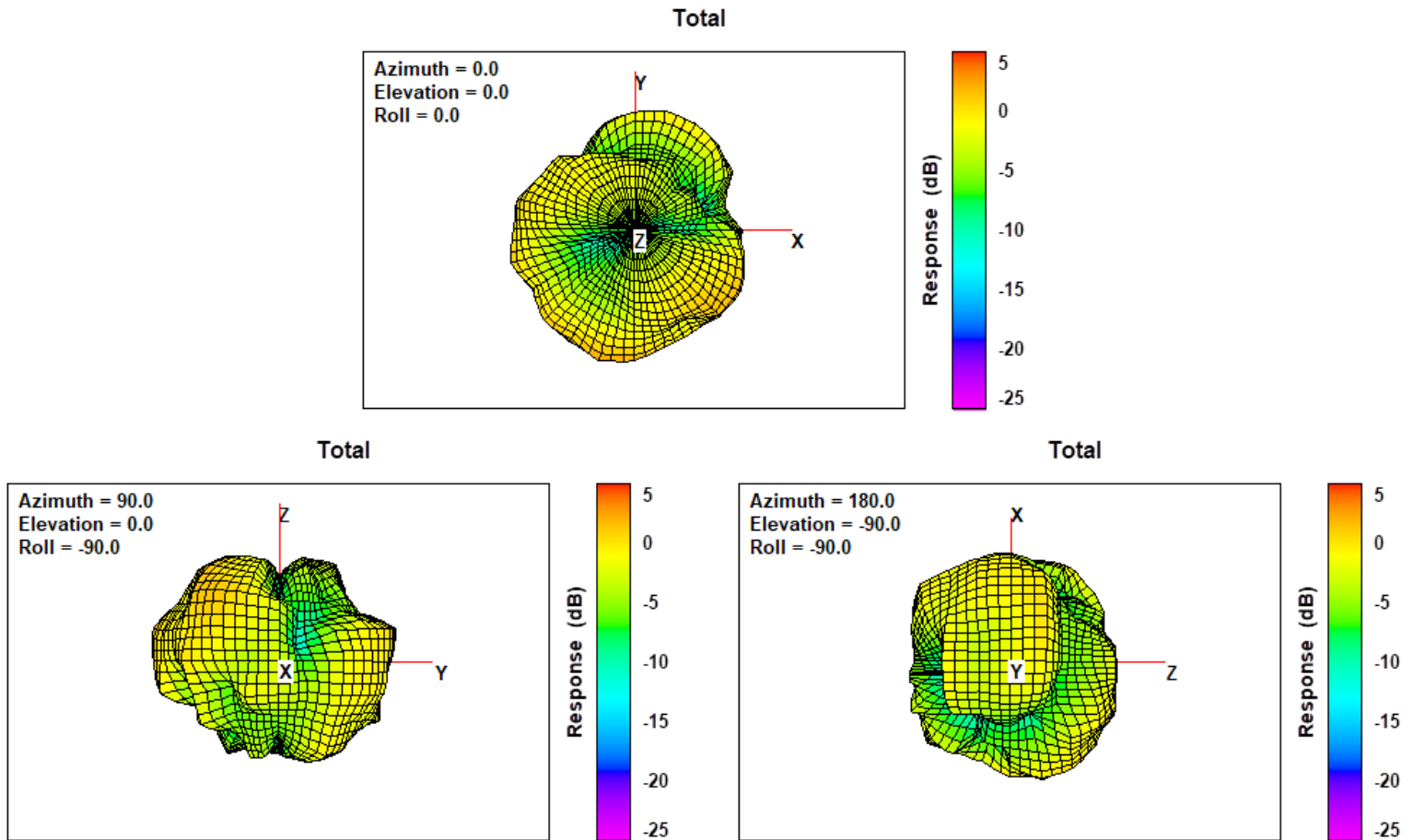
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_5470MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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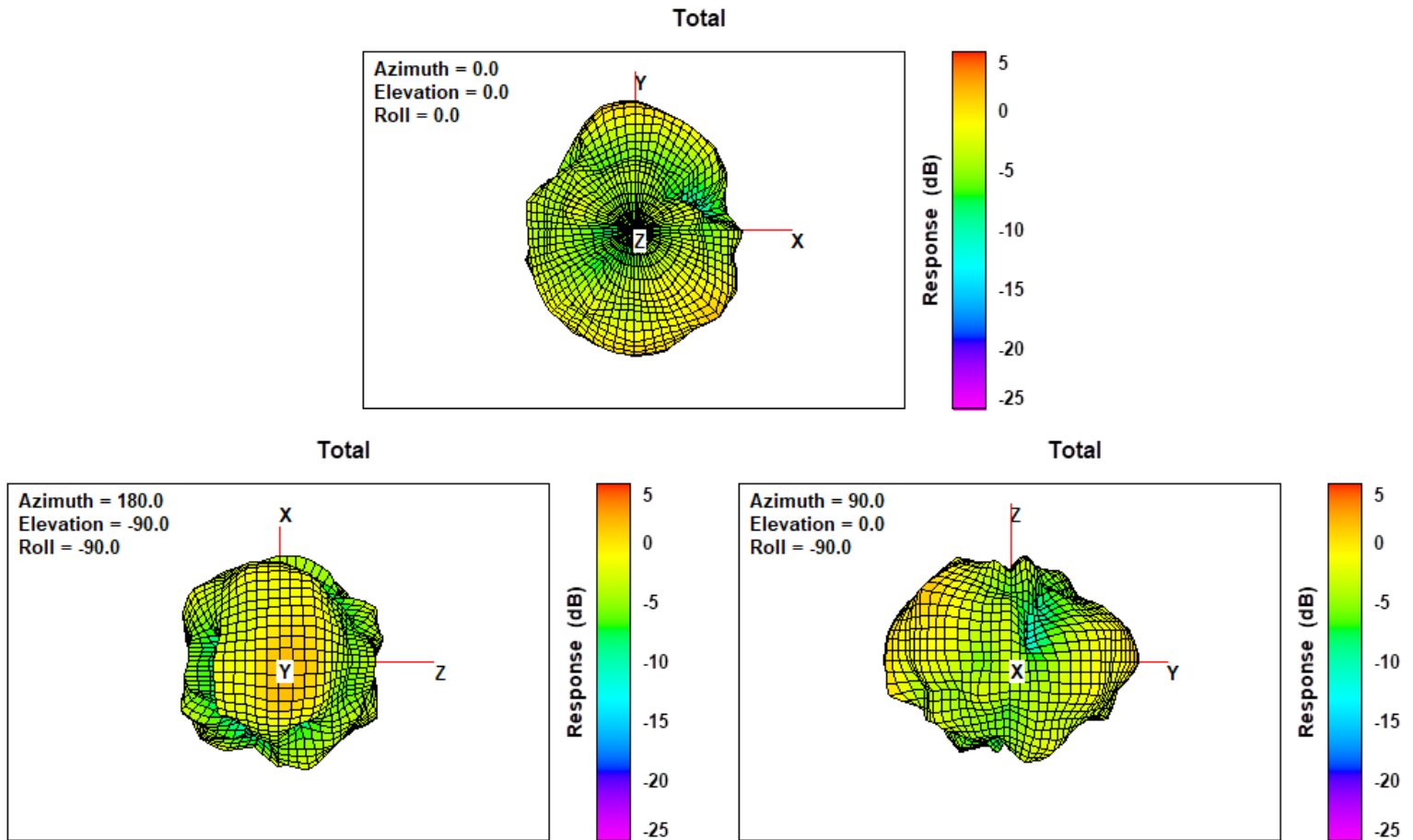
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_5600MHz [WIFI AUX]



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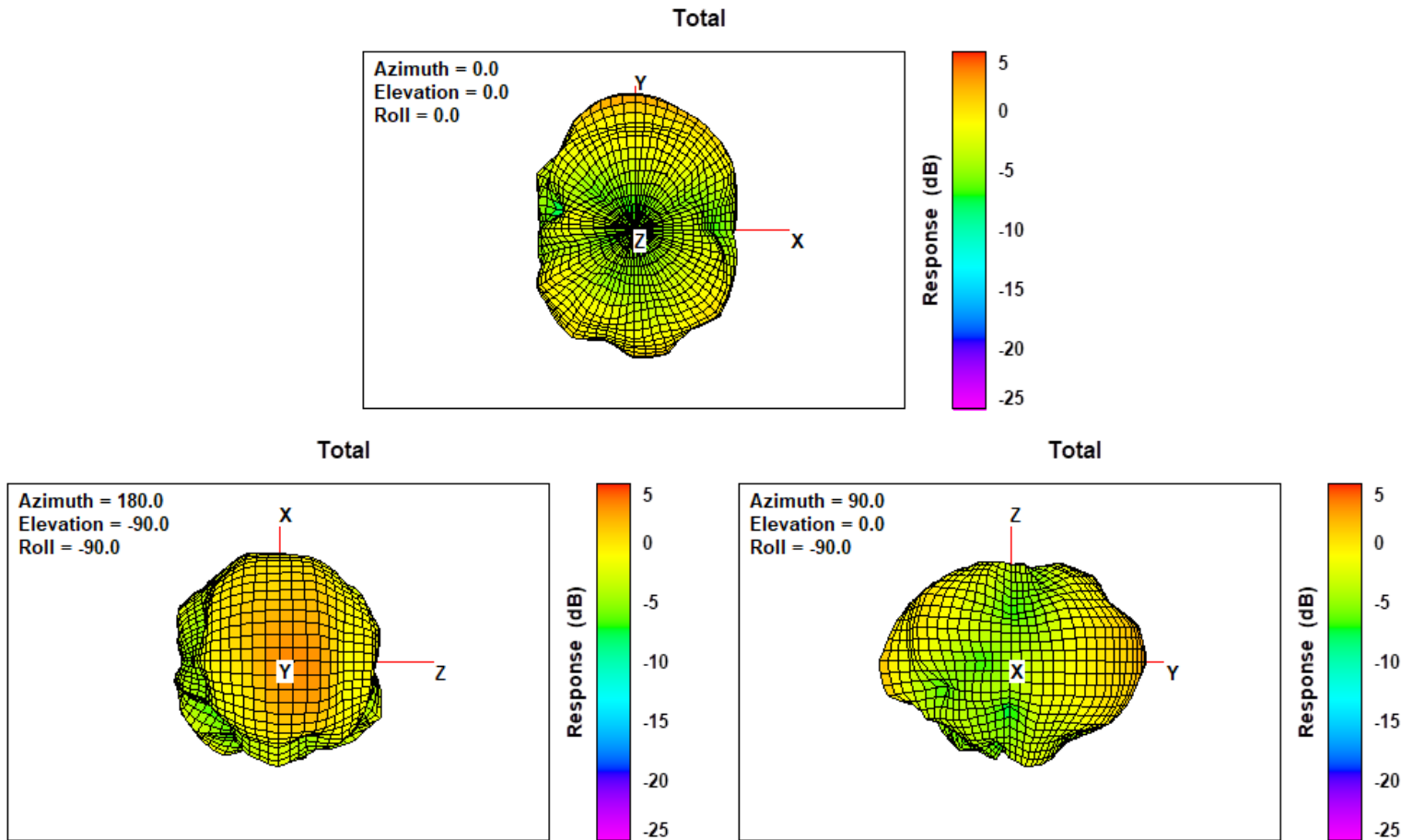
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

3D Radiation_5725MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

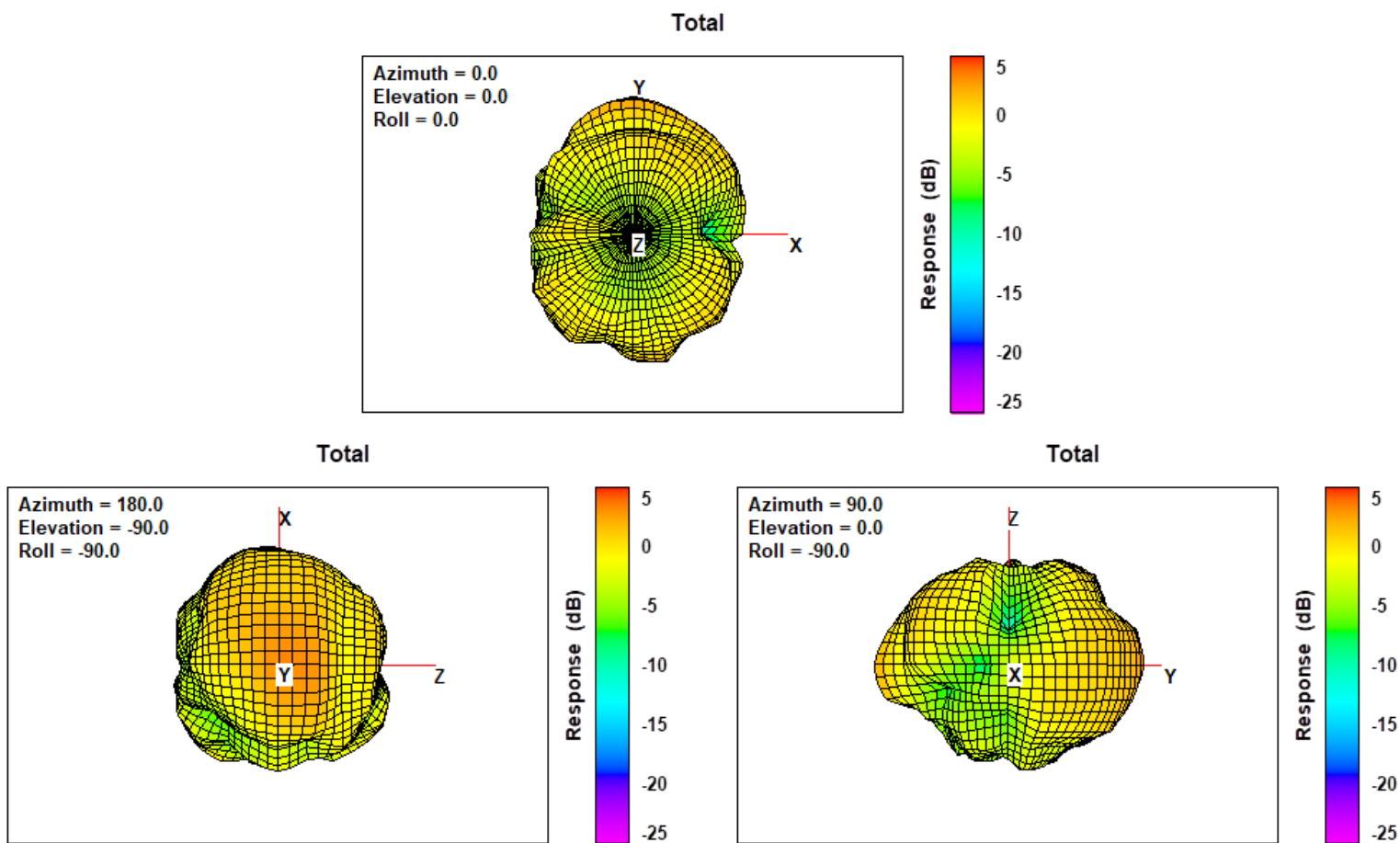
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_5785MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

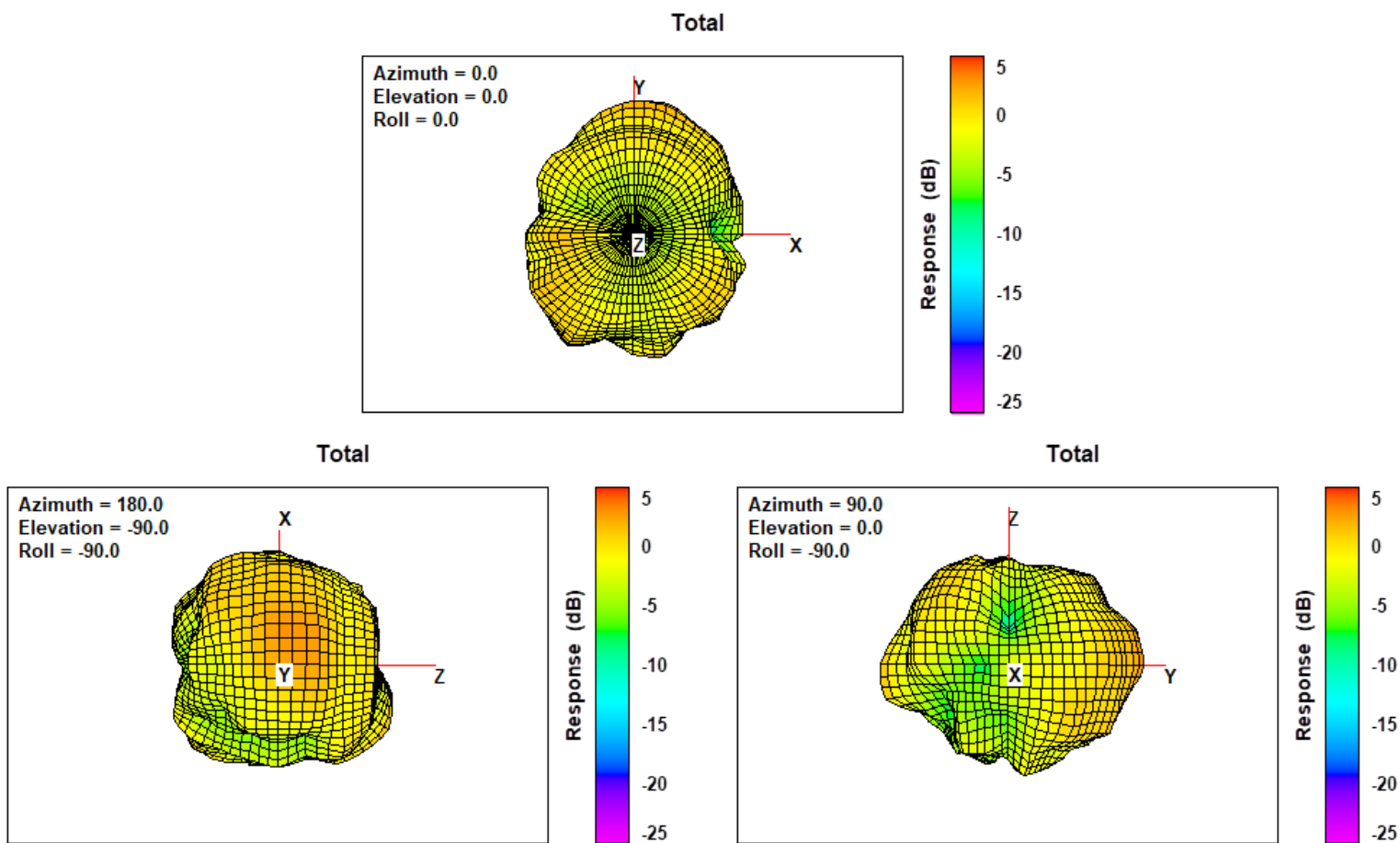
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

3D Radiation_5850MHz [WIFI AUX]



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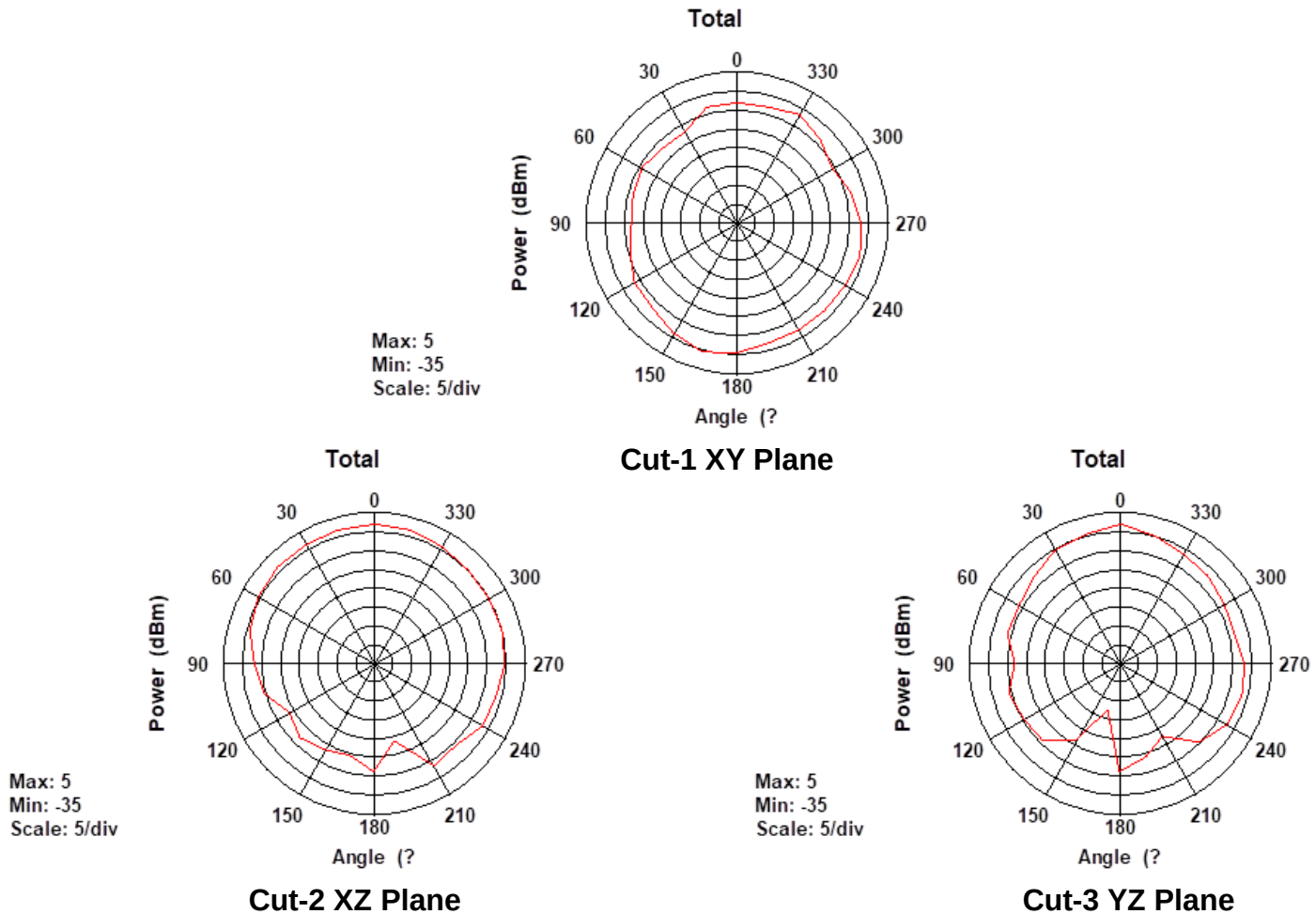
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_2400MHz [WIFI AUX]



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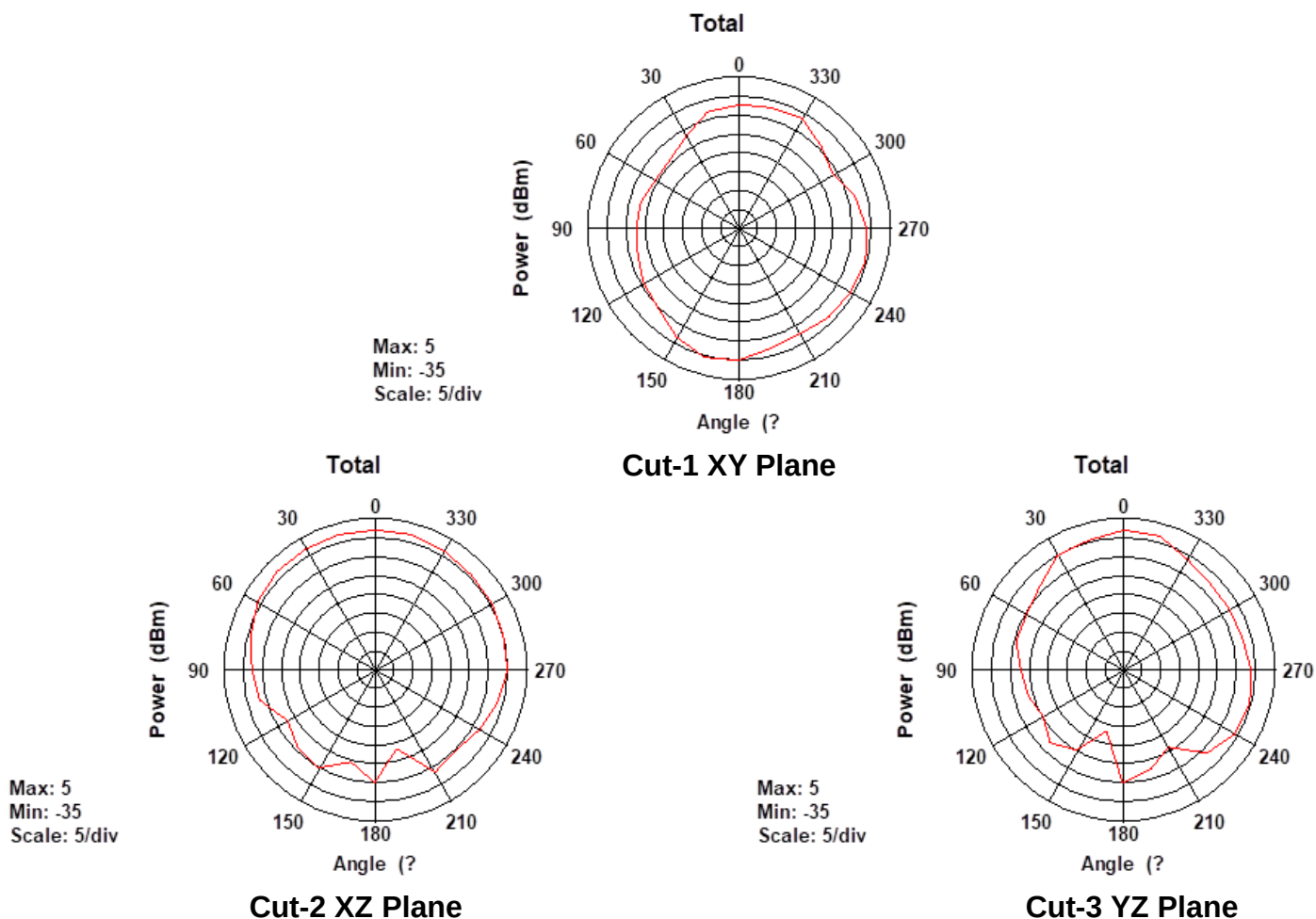
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_2450MHz [WIFI AUX]



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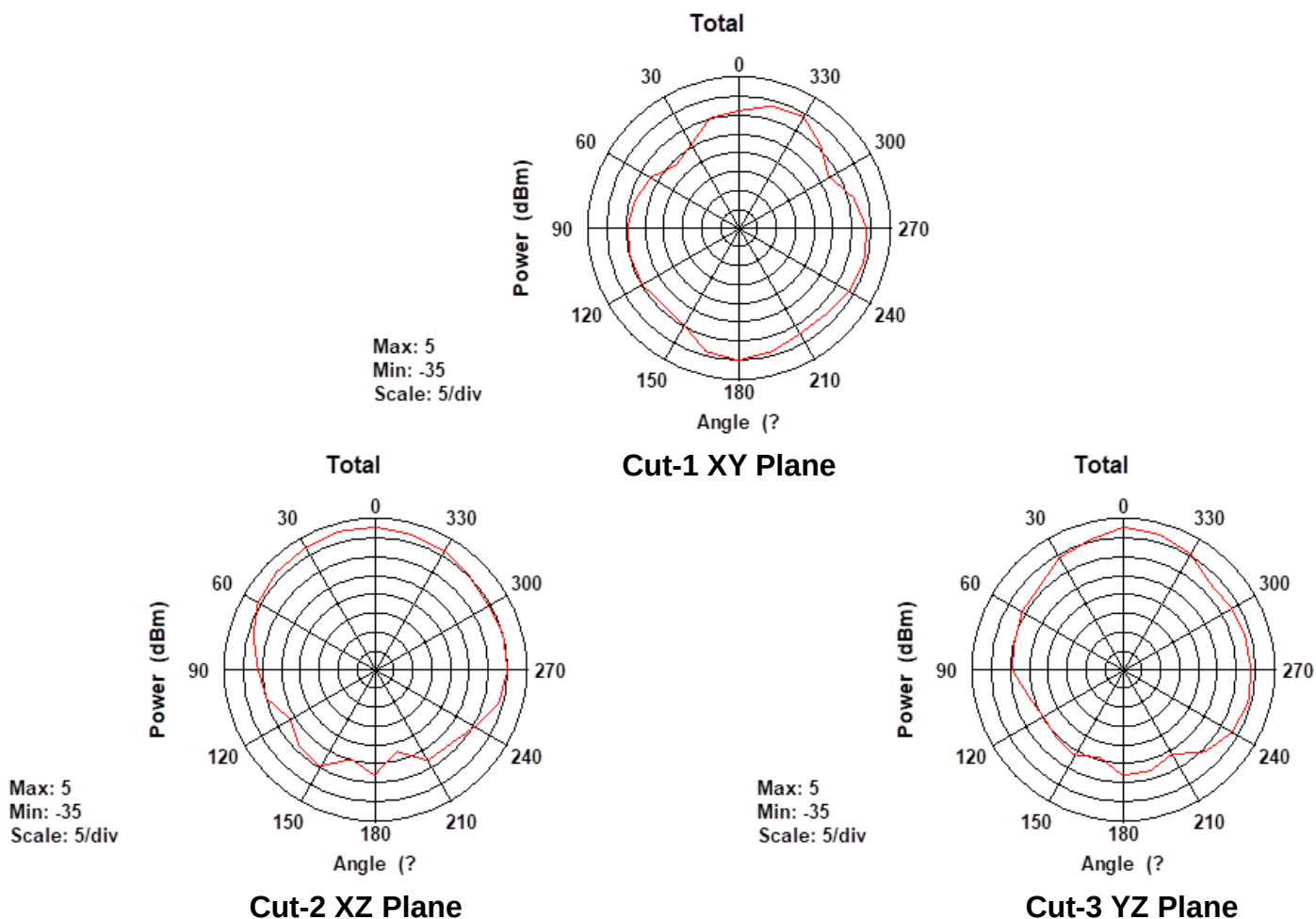
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_2500MHz [WIFI AUX]



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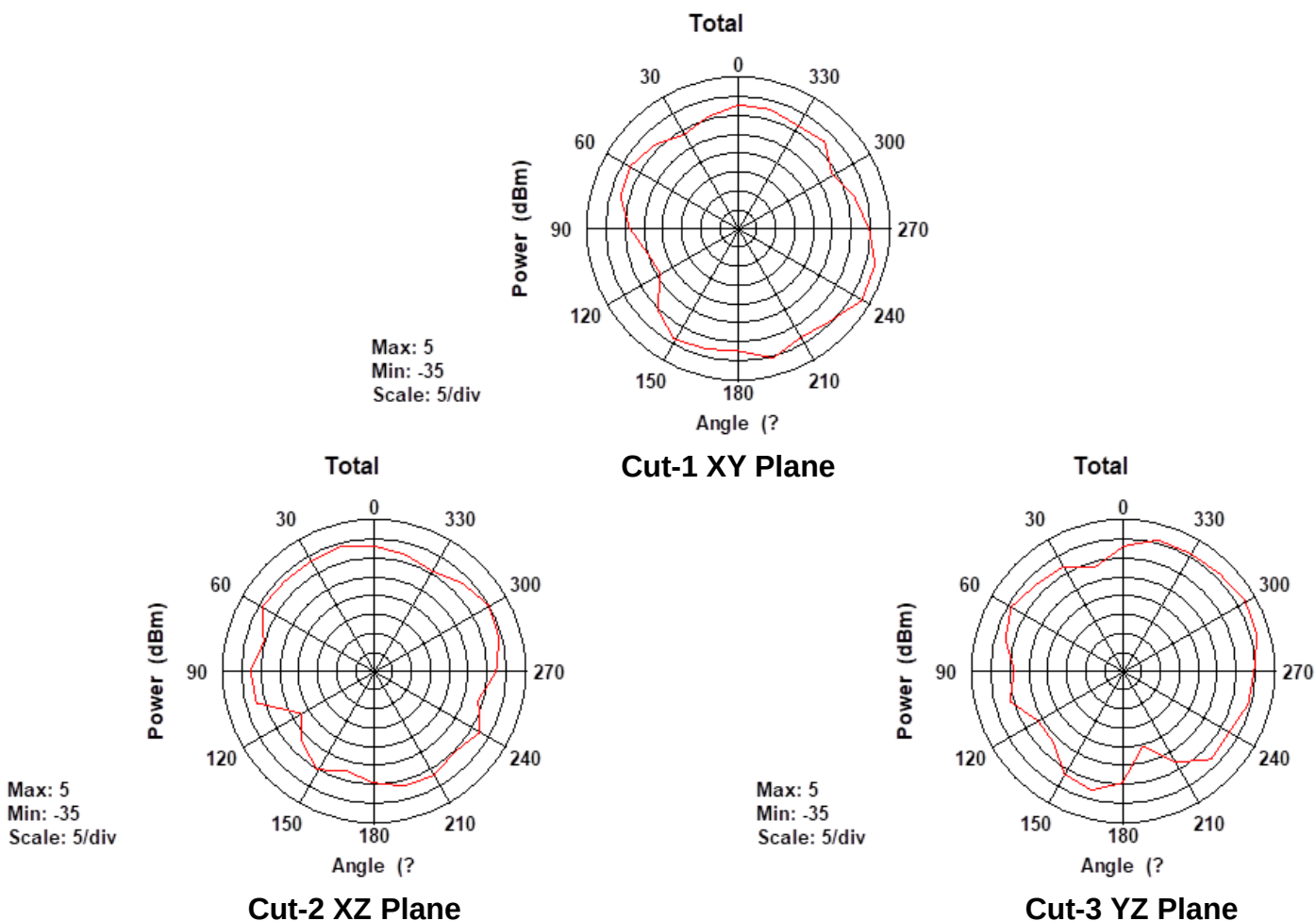
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_5150MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

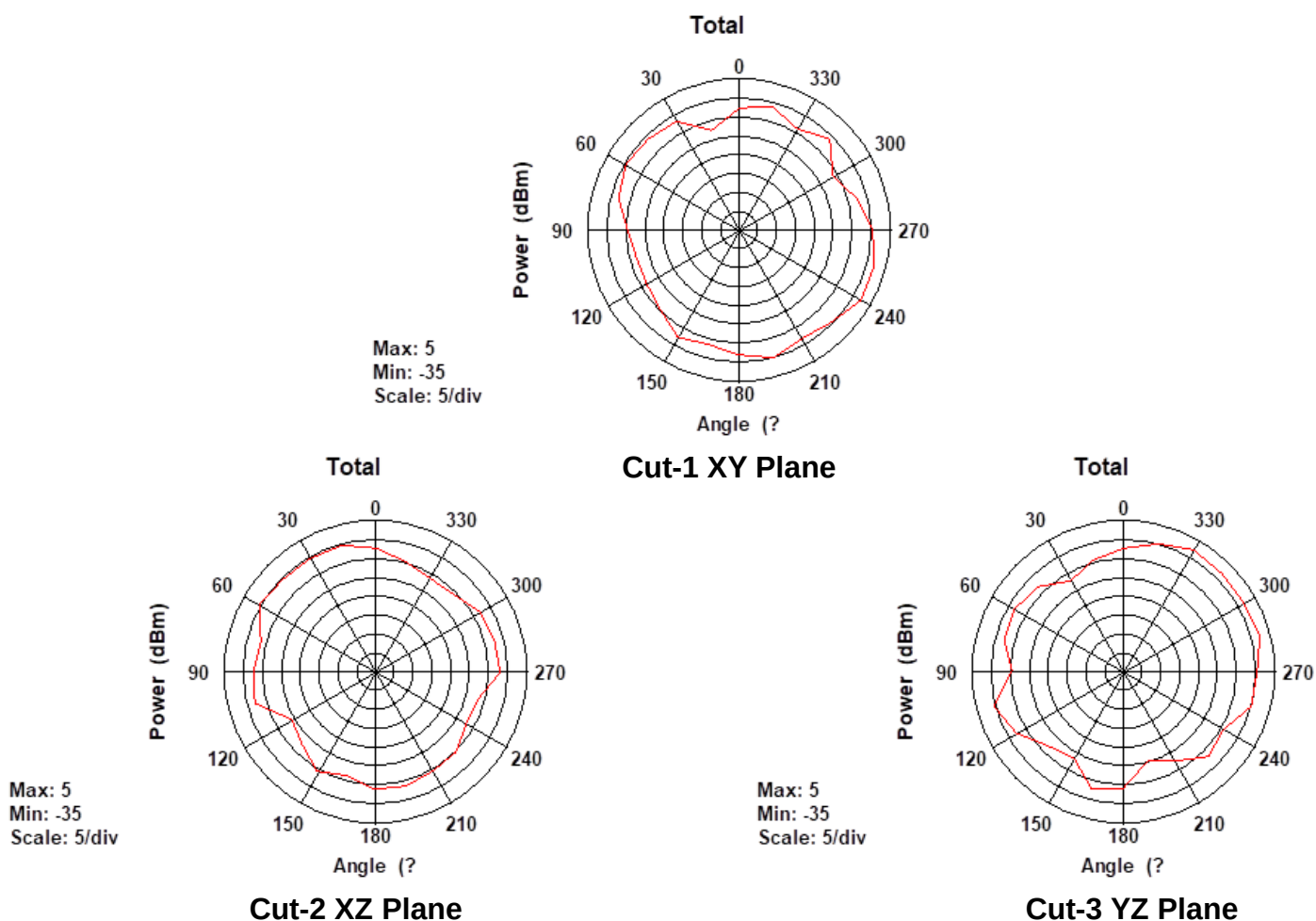
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

2D Radiation_5250MHz [WIFI AUX]



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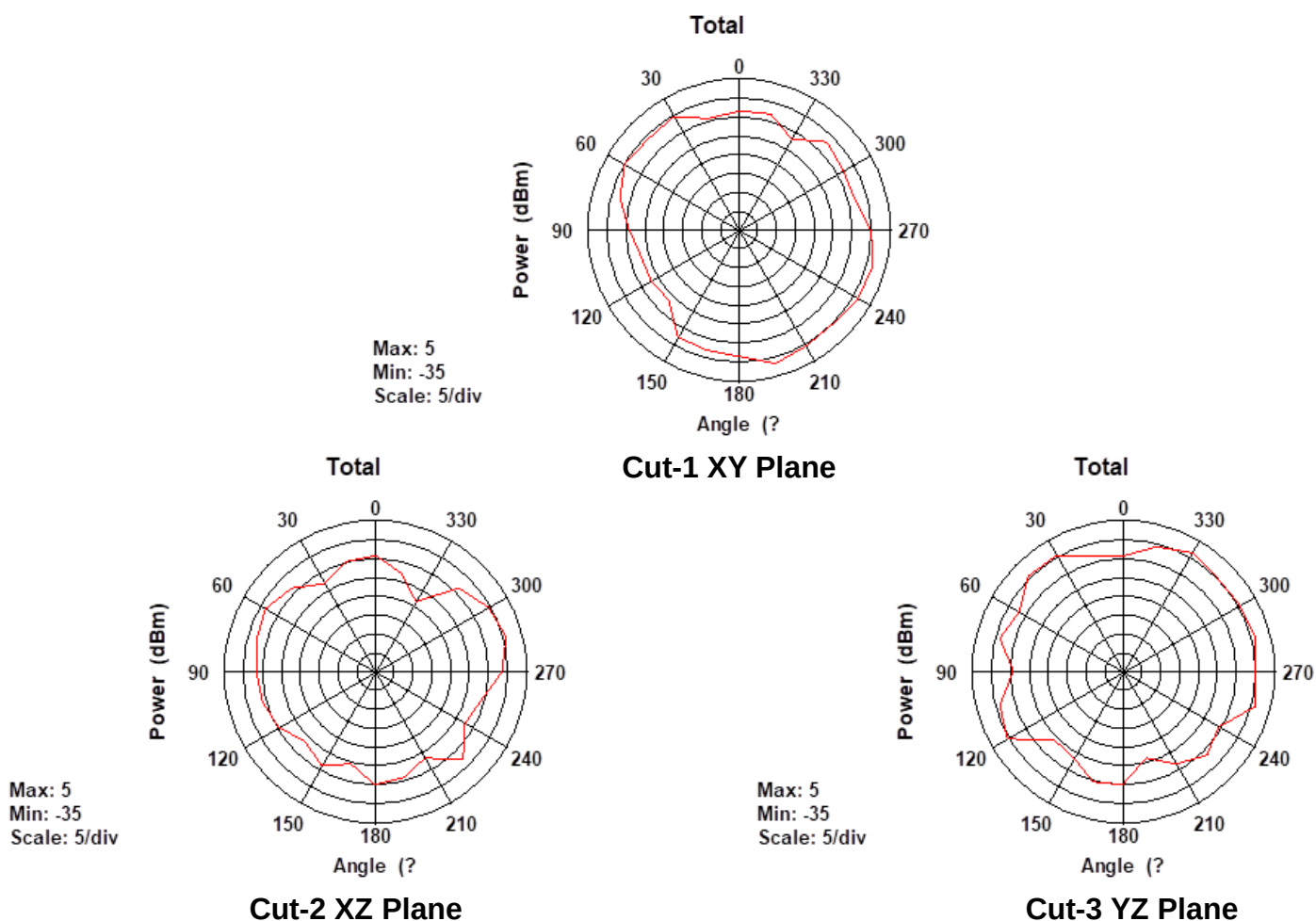
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_5350MHz [WIFI AUX]



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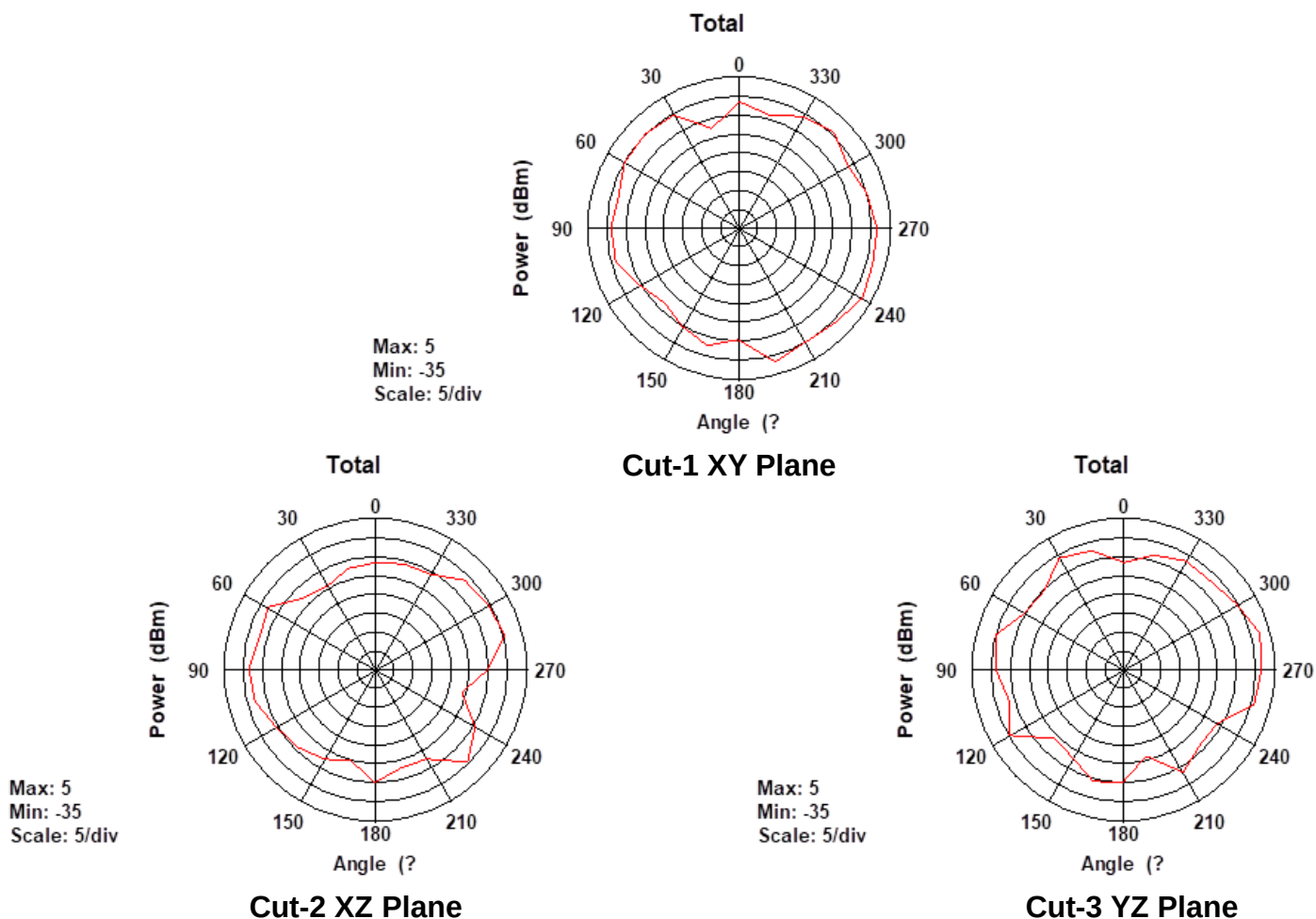
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_5470MHz [WIFI AUX]



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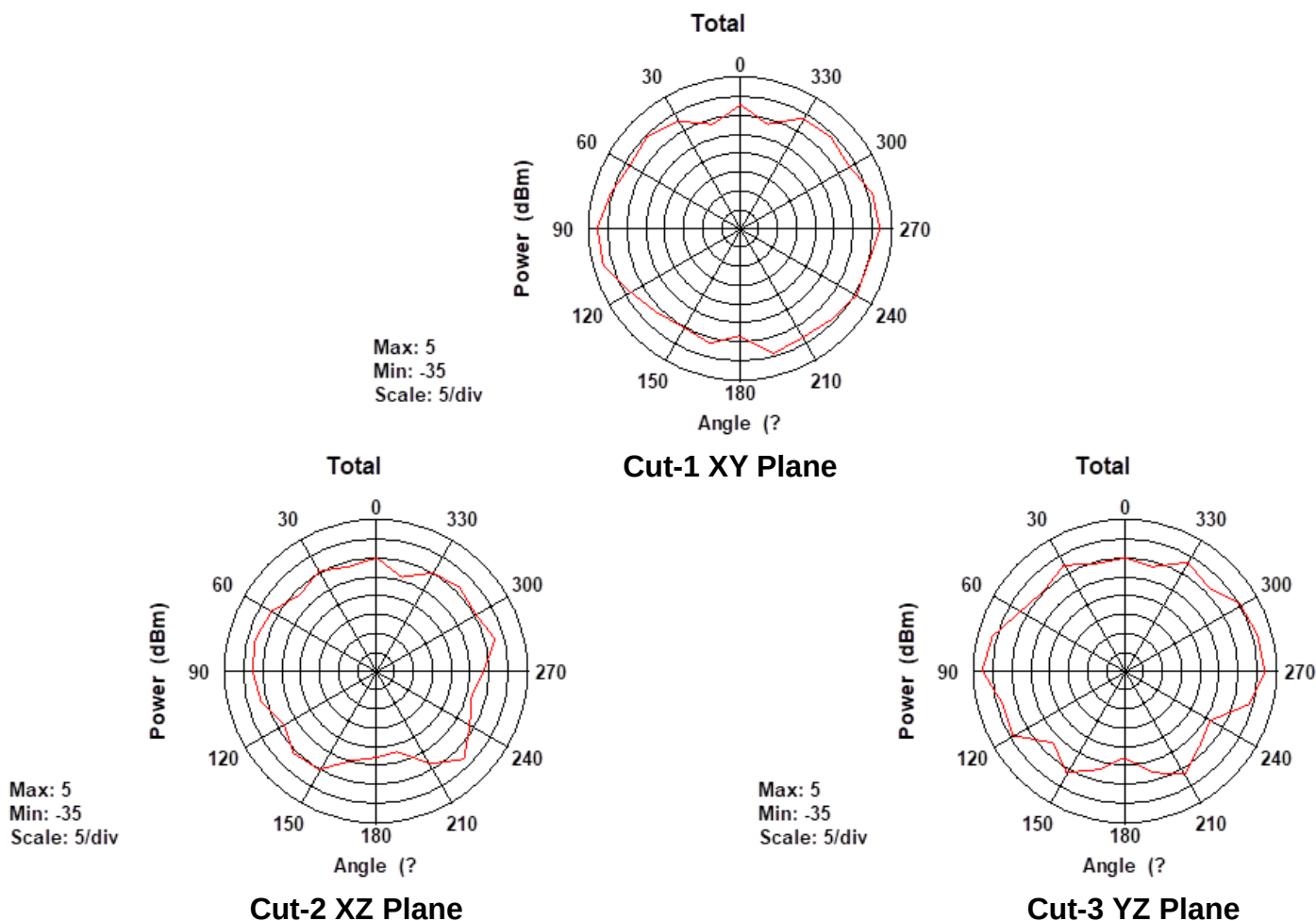
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_5600MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

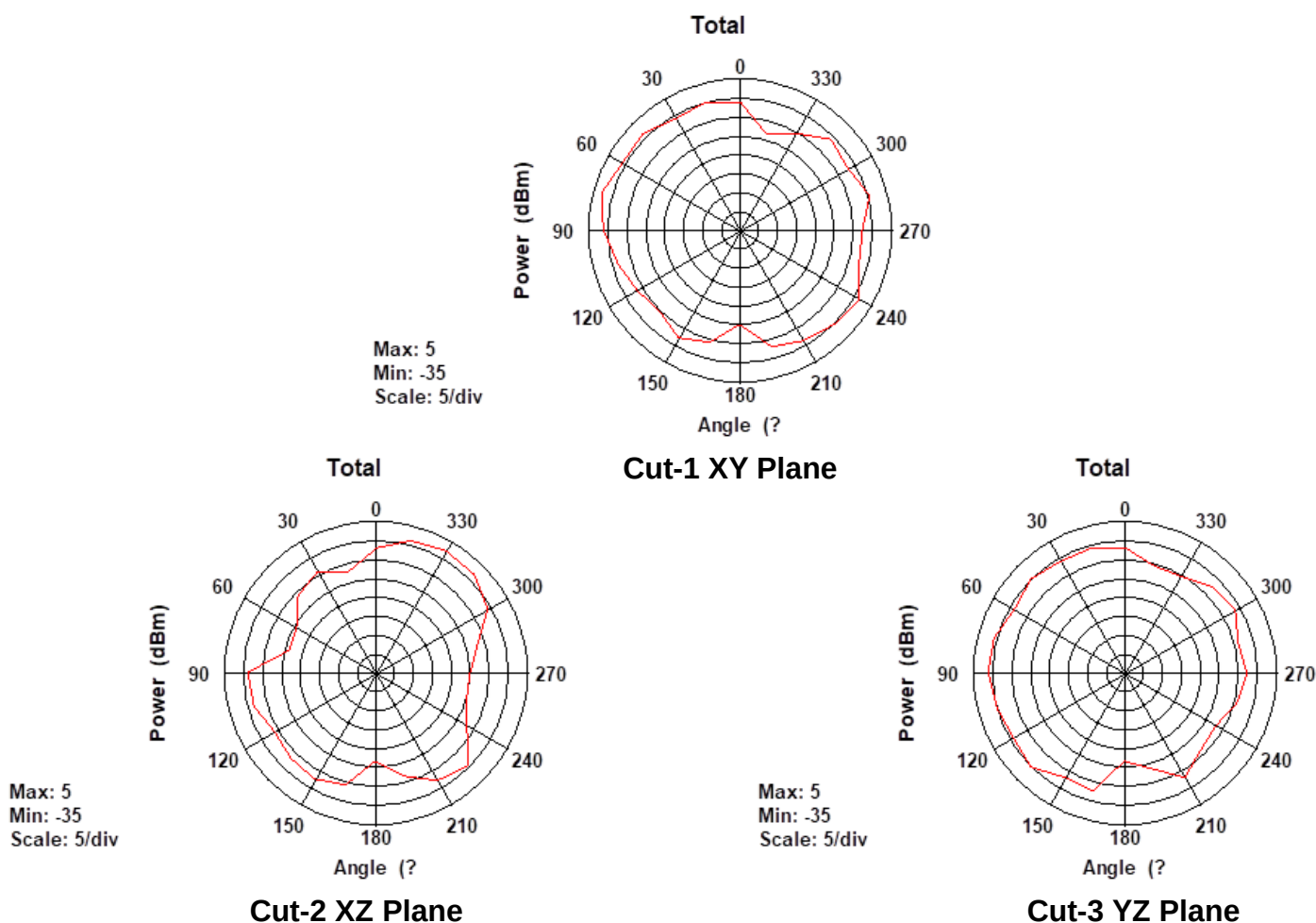
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

2D Radiation_5725MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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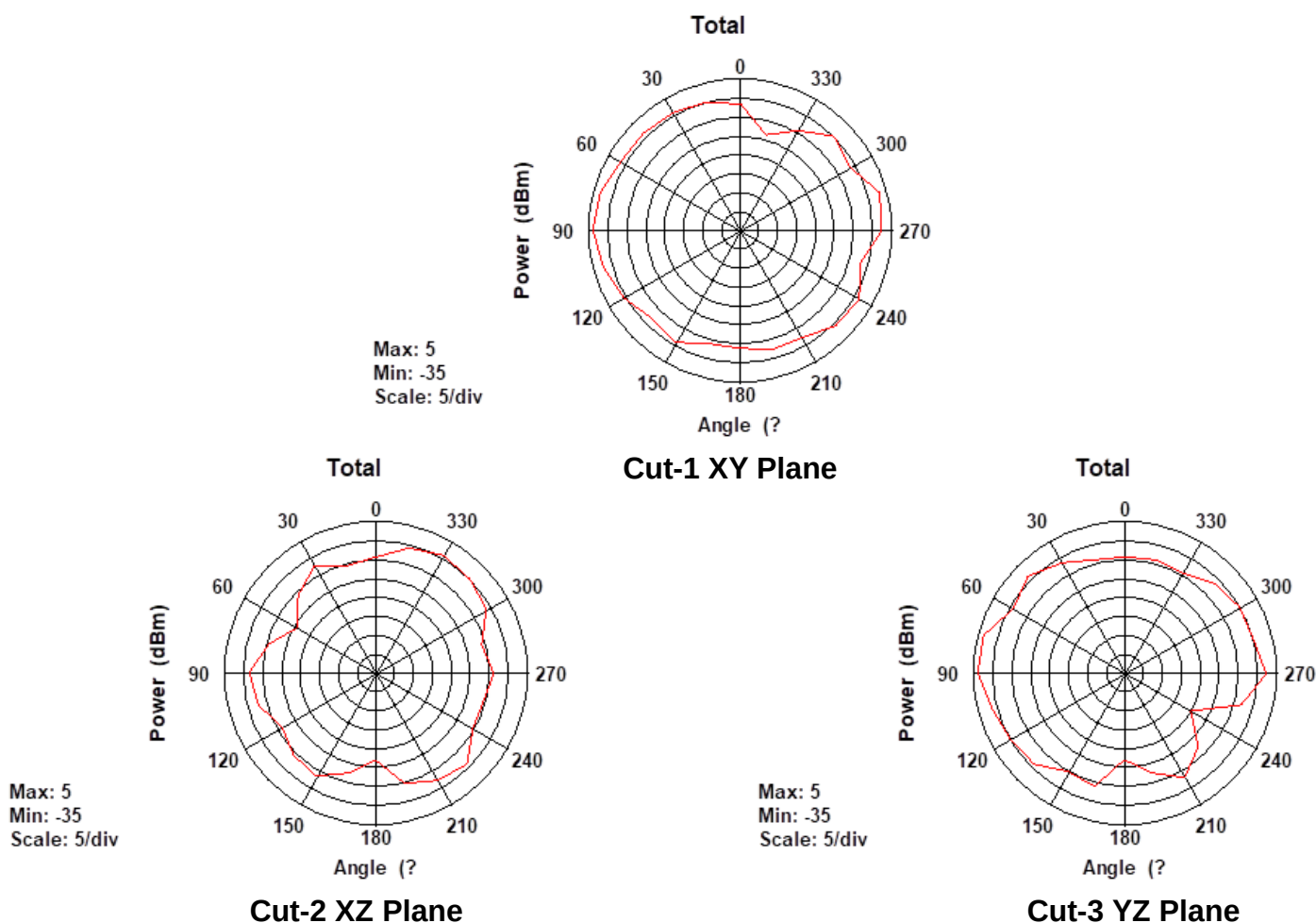
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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

2D Radiation_5785MHz [WIFI AUX]



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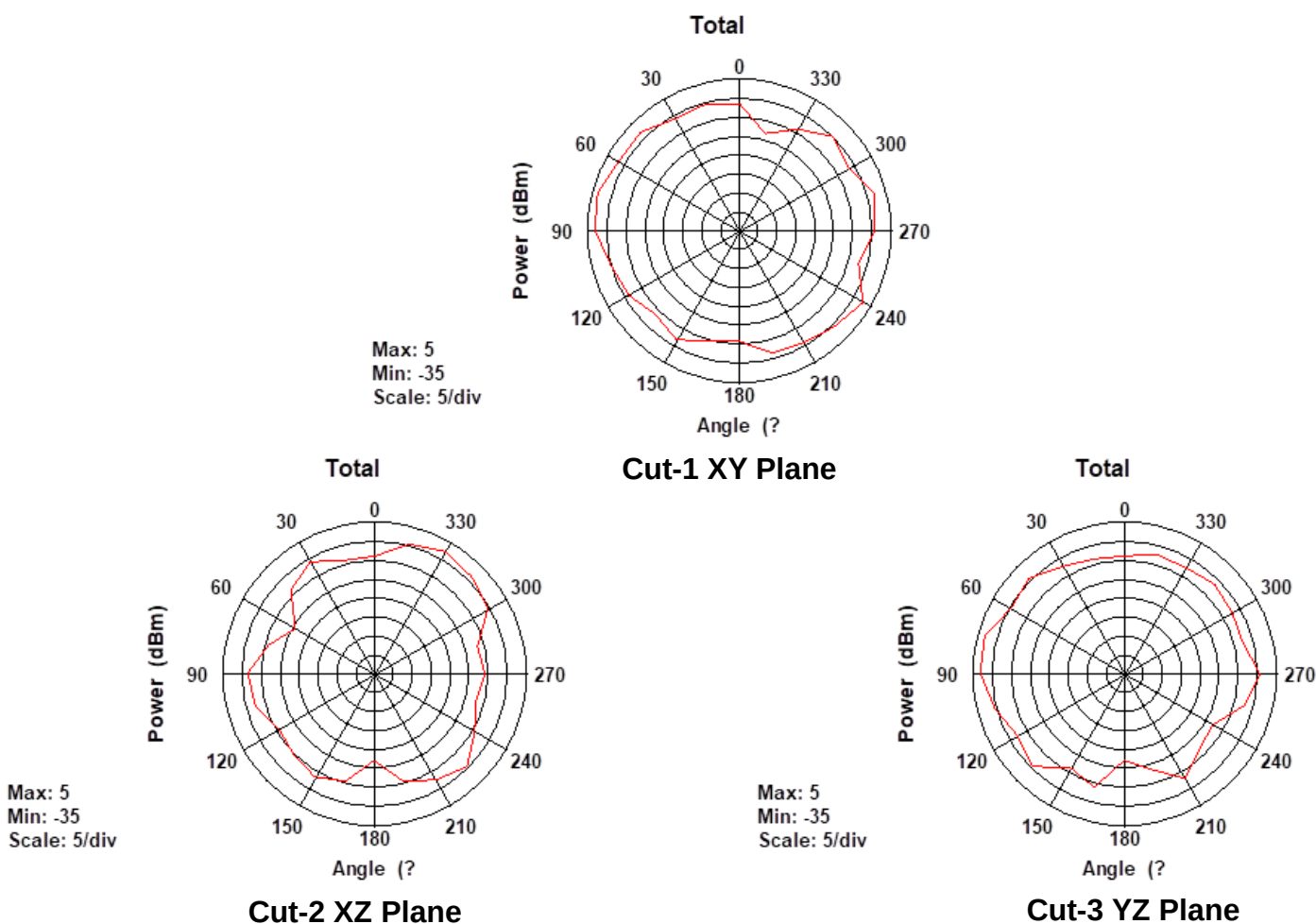
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Series: Swallowtail

Customer P/N: 354-0000511
Manufacturer P/N: TZ29770

2D Radiation_5850MHz [WIFI AUX]



In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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Series: Swallowtail

Customer P/N: 354-0000511

Manufacturer P/N: TZ29770

Electrical test_Passive data

WWAN_AUX

	VzW & ATT										VzW & ATT											
Frequency	698	708	710	717	723	738	746	777	787	791	798	814	824	830	837	845	859	862	880	894	925	960
Tot. Rad. Pwr. (dBm)	-5.51	-5.39	-5.39	-5.28	-5.25	-5.07	-4.94	-3.65	-3.15	-3.02	-2.84	-2.30	-2.27	-2.27	-2.32	-1.97	-2.10	-2.14	-2.44	-2.67	-3.08	-4.27
Gain (dBi)	-2.95	-2.75	-2.72	-2.56	-2.44	-2.02	-1.67	0.04	0.28	0.37	0.41	1.10	0.96	0.89	0.89	0.98	1.00	1.06	1.23	1.31	0.72	-0.02
Directivity (dBi)	2.57	2.65	2.66	2.72	2.81	3.05	3.27	3.69	3.43	3.39	3.24	3.40	3.23	3.15	3.21	2.95	3.10	3.20	3.67	3.99	3.80	4.24
Efficiency (%)	28.10	28.89	28.94	29.66	29.84	31.10	32.10	43.15	48.39	49.90	52.06	58.92	59.27	59.36	58.64	63.58	61.64	61.09	56.97	54.03	49.16	37.43

	VzW & ATT										VzW											
Frequency	1710	1750	1780	1805	1850	1880	1900	1930	1960	2010	2140	2300	2355	2500	2595	2690	3300	3400	3500	3600	3700	3800
Tot. Rad. Pwr. (dBm)	-3.30	-3.55	-3.50	-3.26	-3.37	-3.52	-3.47	-3.66	-3.88	-5.79	-4.03	-2.83	-3.37	-3.18	-2.89	-3.06	-3.68	-3.44	-3.13	-2.88	-3.58	-3.61
Gain (dBi)	1.31	1.32	1.43	1.80	1.66	1.21	1.46	1.54	1.22	-1.72	-0.44	3.45	3.01	2.50	2.31	2.60	3.45	4.05	3.59	2.28	1.31	1.29
Directivity (dBi)	4.62	4.87	4.93	5.06	5.04	4.73	4.93	5.20	5.09	4.08	3.59	6.28	6.37	5.68	5.20	5.66	7.12	7.49	6.72	5.16	4.89	4.90
Efficiency (%)	46.76	44.19	44.71	47.25	46.02	44.46	44.95	43.04	40.94	26.34	39.53	52.12	46.08	48.07	51.38	49.40	42.90	45.27	48.61	51.51	43.88	43.54

WIFI_AUX / BT

Frequency	2400	2450	2500	5150	5250	5350	5470	5600	5725	5785	5850
Tot. Rad. Pwr. (dBm)	-3.17	-2.97	-3.23	-2.32	-2.26	-2.29	-2.45	-3.06	-2.16	-1.60	-1.55
Gain (dBi)	1.55	2.23	2.47	4.20	3.91	2.86	2.92	2.27	3.54	3.60	3.19
Directivity (dBi)	4.72	5.20	5.70	6.52	6.18	5.15	5.37	5.33	5.70	5.20	4.75
Efficiency (%)	48.19	50.52	47.57	58.57	59.36	58.99	56.94	49.48	60.82	69.16	69.90

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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