

25.11.12

RA-N2511-31

APPROVAL SHEET

MODEL :
Alpinestars
Antenna layout

Review	Consent	Approval

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1. Revision History

NO.	Before	After	Reason	Date
1				
2				
3				
4				
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6				
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12				
13				

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2. Product Information

2.1 General Features

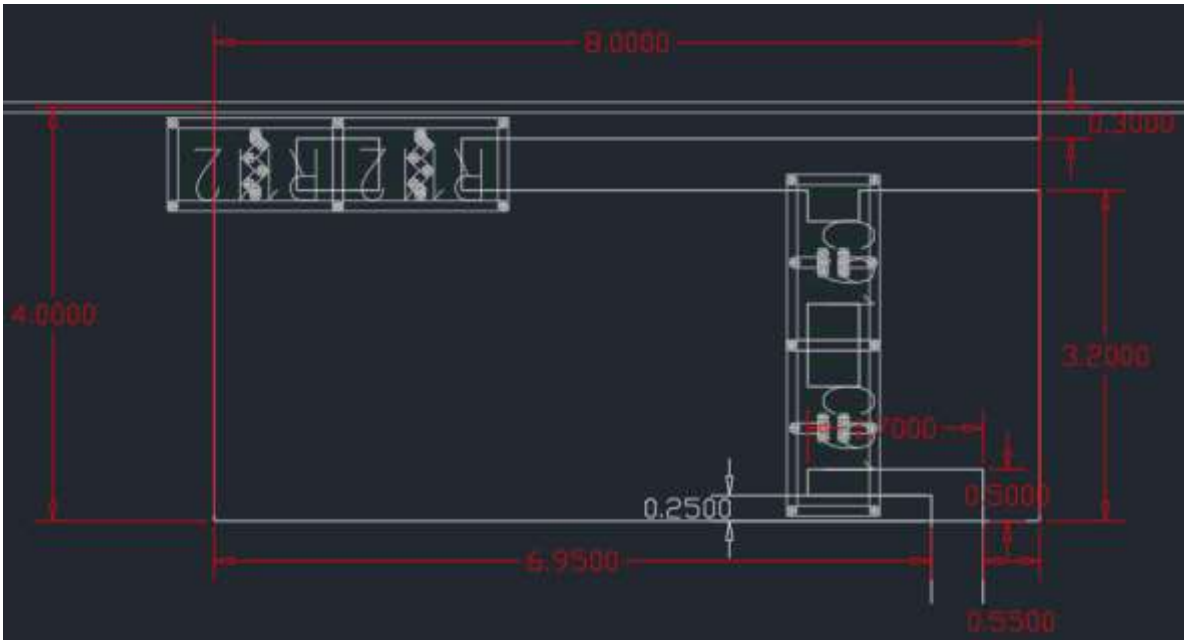
PART NUMBER	GradiANT
ANTENNA TYPE	PCB pattern Antenna
APPLICATIONS	Bluetooth

2.2 Electrical Specifications

Frequency Range1 (TX)		2400MHz~2485MHz	
Frequency Range1 (RX)		2400MHz~2485MHz.	
IMPEDANCE		50 Ω	
V.S.W.R	TX	2400MHz	2485MHz
		5 ↓	5 ↓
	RX	2400MHz	2485MHz
		5 ↓	5 ↓
RADIATION PATTERN		Omni-directional	
POLARIZATION		Linear	

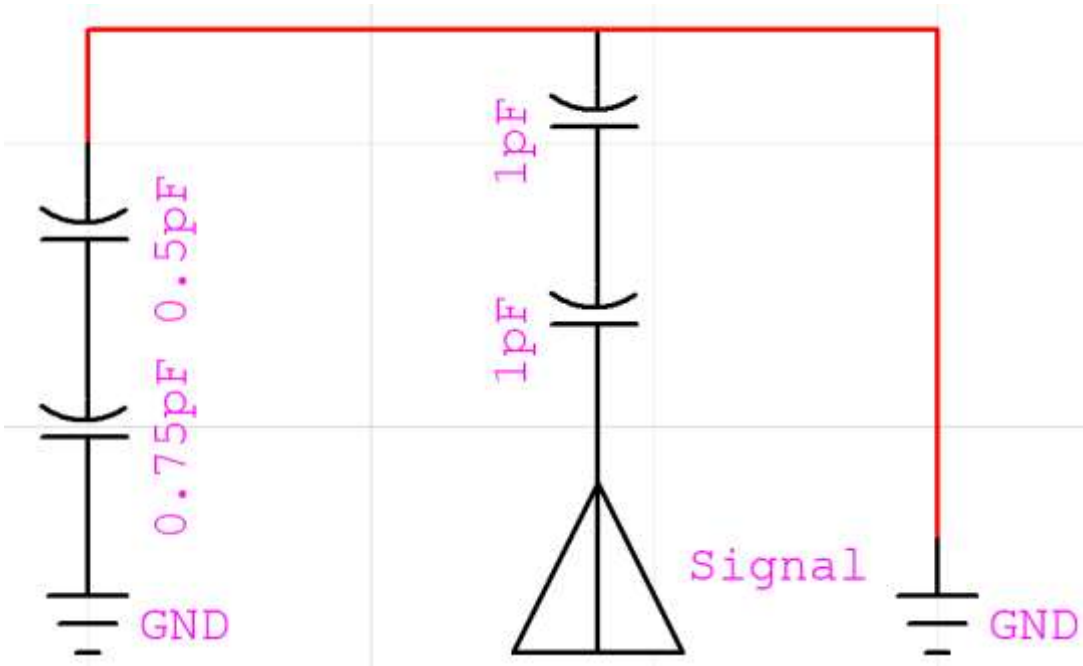
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3. Pattern Specifications



4. Matching Network

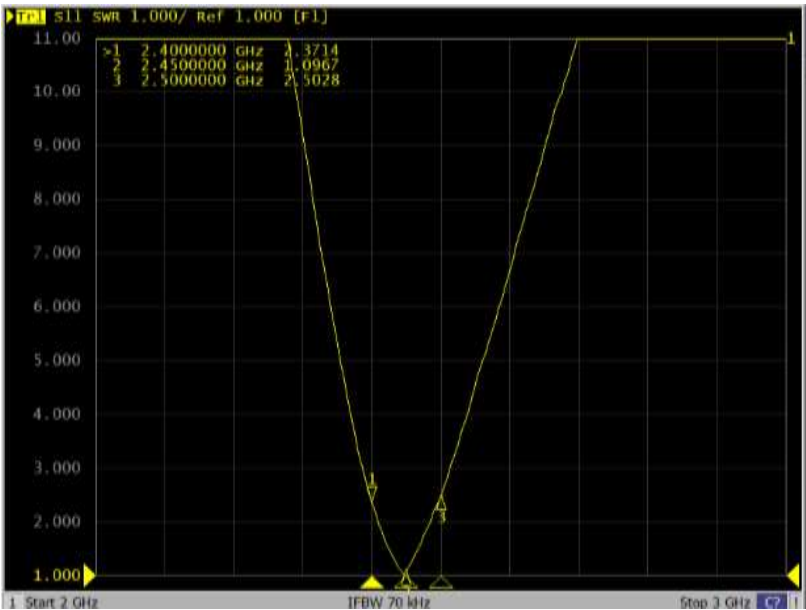
Capacitor value can be changed depending on different situation



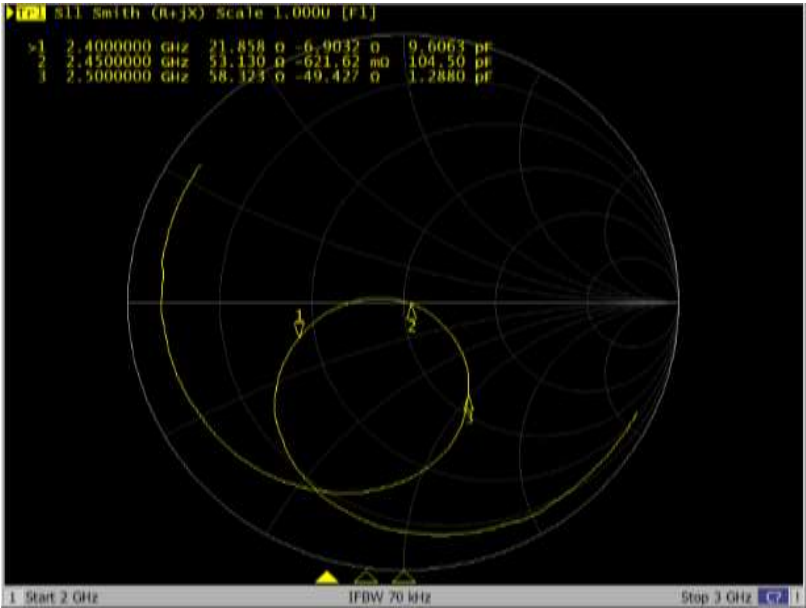
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5. Electrical Characterristics

5.1 VSWR

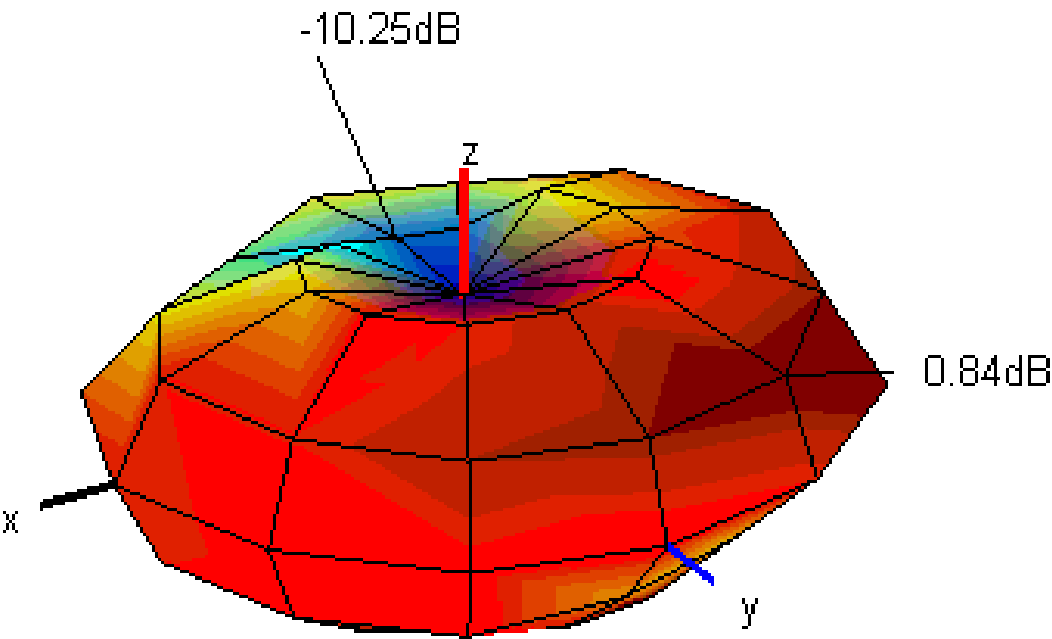


5.2 SMITH CHART

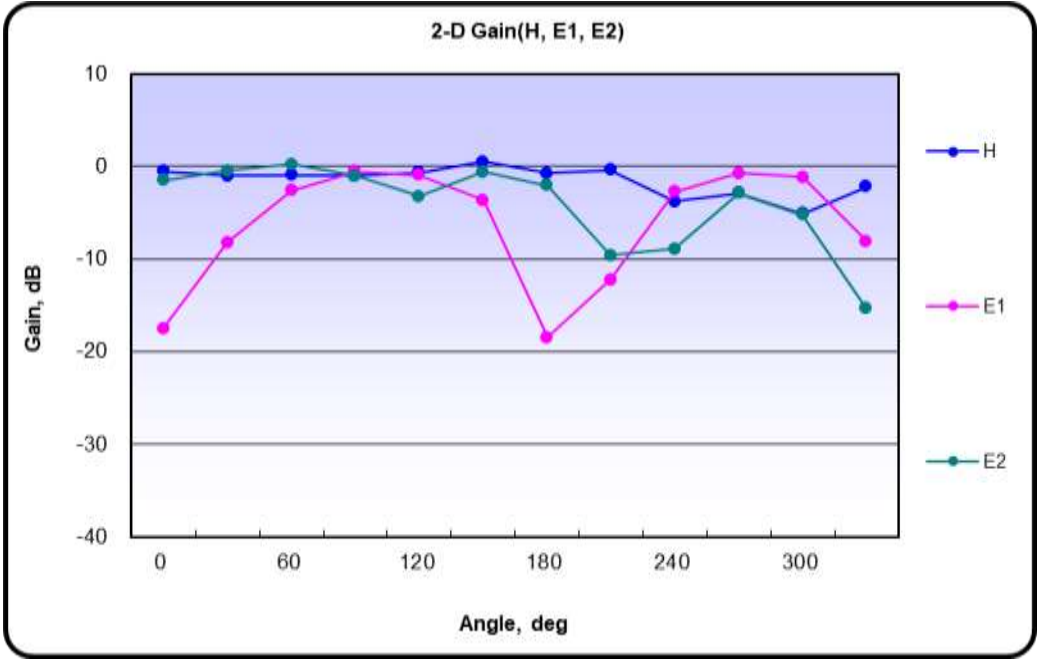


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5.3 3D-PLOTs



5.4 2D-Gain



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6. Passive Measurement

	1	2	3	4	5	6	7	8	9	10
Frequency [MHz]	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445
Efficiency [dB]	-2.92	-2.85	-2.74	-2.61	-2.43	-2.26	-2.02	-1.99	-2.02	-1.94
Efficiency [%]	51.0	51.9	53.2	54.8	57.1	59.4	62.8	63.3	62.9	64.0
TRG _θ [dB]	-3.74	-3.68	-3.56	-3.43	-3.27	-3.14	-2.88	-2.84	-2.88	-2.82
TRG _φ [dB]	-10.60	-10.46	-10.39	-10.25	-10.00	-9.60	-9.49	-9.49	-9.43	-9.29
UHRG [dB]	-5.84	-5.74	-5.63	-5.53	-5.33	-5.17	-4.88	-4.84	-4.88	-4.80
UHRG/TRG [%]	51.0	51.4	51.4	51.0	51.4	51.2	51.8	51.8	51.7	51.7
H-Plane	-2.14	-2.13	-2.00	-1.84	-1.64	-1.63	-1.36	-1.40	-1.48	-1.33
E1-Plane, AVG [dB]	-4.54	-4.54	-4.53	-4.29	-4.07	-3.96	-3.78	-3.65	-3.88	-3.63
E2-Plane, AVG [dB]	-3.94	-3.89	-3.49	-3.45	-3.44	-3.34	-2.94	-2.78	-2.80	-2.67
Peak Gain [dB]	-0.18	-0.17	-0.11	0.12	0.73	0.64	0.86	0.82	1.01	0.84
Directivity [dB]	2.75	2.68	2.63	2.73	3.17	2.90	2.88	2.81	3.02	2.78
Minimum Gain [dB]	-13.14	-12.67	-13.35	-14.26	-11.94	-12.47	-13.75	-12.52	-11.88	-10.25

	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency [dB]	-2.04	-2.00	-2.01	-1.94	-1.84	-2.04	-2.16	-3.00	-2.83	-3.10
Efficiency [%]	62.5	63.0	62.9	64.0	65.5	62.5	60.8	50.2	52.1	49.0
TRG _θ [dB]	-2.94	-2.90	-2.92	-2.86	-2.75	-2.96	-3.09	-3.95	-3.79	-4.08
TRG _φ [dB]	-9.32	-9.32	-9.27	-9.13	-9.07	-9.24	-9.32	-10.06	-9.87	-10.04
UHRG [dB]	-4.88	-4.83	-4.81	-4.78	-4.65	-4.86	-4.99	-5.84	-5.69	-5.89
UHRG/TRG [%]	52.0	52.2	52.5	52.0	52.3	52.2	52.1	52.0	51.8	52.6
H-Plane	-1.62	-1.51	-1.60	-1.55	-1.50	-1.72	-1.79	-2.79	-2.57	-2.99
E1-Plane, AVG [dB]	-3.72	-3.96	-3.86	-3.68	-3.54	-3.87	-3.95	-4.92	-4.74	-4.96
E2-Plane, AVG [dB]	-2.91	-2.82	-2.79	-2.70	-2.62	-2.69	-2.80	-3.39	-3.52	-3.59
Peak Gain [dB]	1.03	0.81	1.15	1.20	1.01	0.70	0.61	-0.04	0.12	0.25
Directivity [dB]	3.07	2.82	3.16	3.14	2.85	2.74	2.76	2.95	2.95	3.35
Minimum Gain [dB]	-10.80	-12.76	-11.23	-12.79	-10.32	-12.40	-13.45	-11.05	-10.99	-10.35

Average Efficiency	-2.32dBi	58.64%
Peak Gain	1.20dBi	