24.11.25

RA-N2411-71

APPROVAL SHEET

MODEL : KANE7
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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11				
12				
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2. Product Information

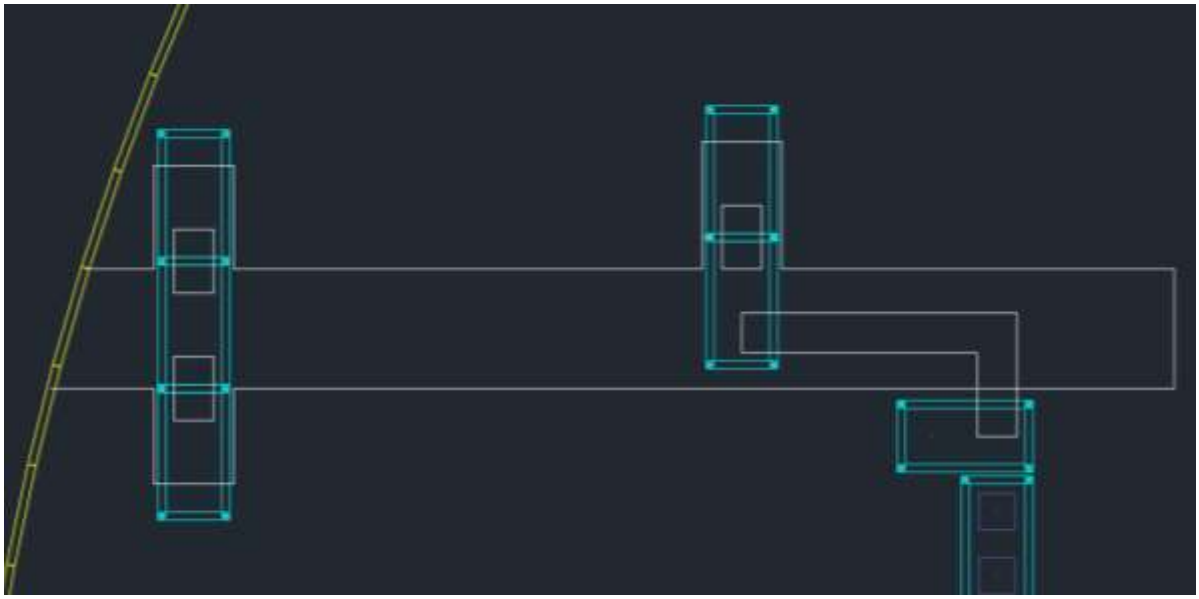
2.1 General Features

PART NUMBER	GRDS24117BT01
ANTENNA TYPE	PCB Pattern Antenna
APPLICATIONS	Bluetooth

2.2 Electrical Specifications

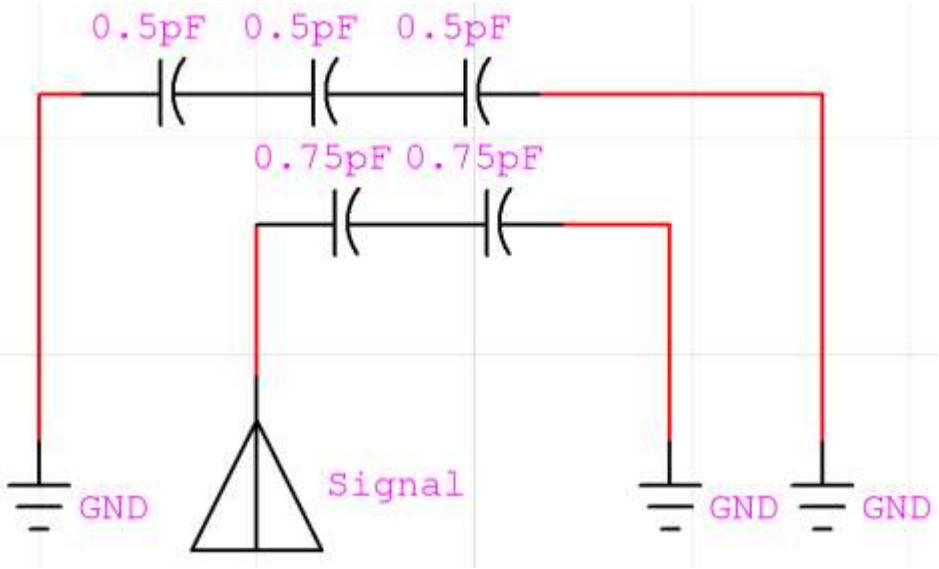
Frequency Range1 (TX)		2400MHz~2485MHz	
Frequency Range1 (RX)		2400MHz~2485MHz	
IMPEDANCE		50 Ω	
V.S.W.R	TX	2400MHz	2485MHz
		3↓	3↓
	RX	2400MHz	2485MHz
		3↓	3↓
RADIATION PATTERN		Omni-directional	
POLARIZATION		Linear	

3. Pattern Specifications



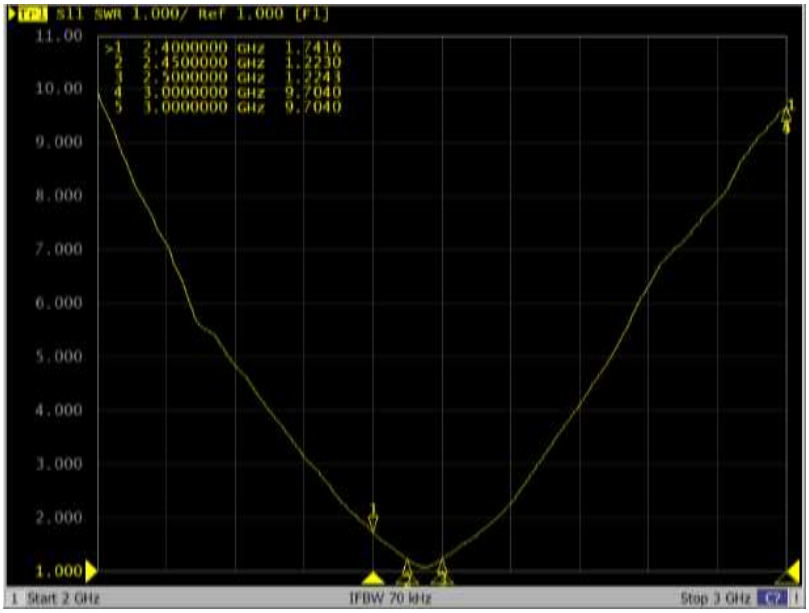
4. Matching Network

Capacitor value can be changed depending on different situation

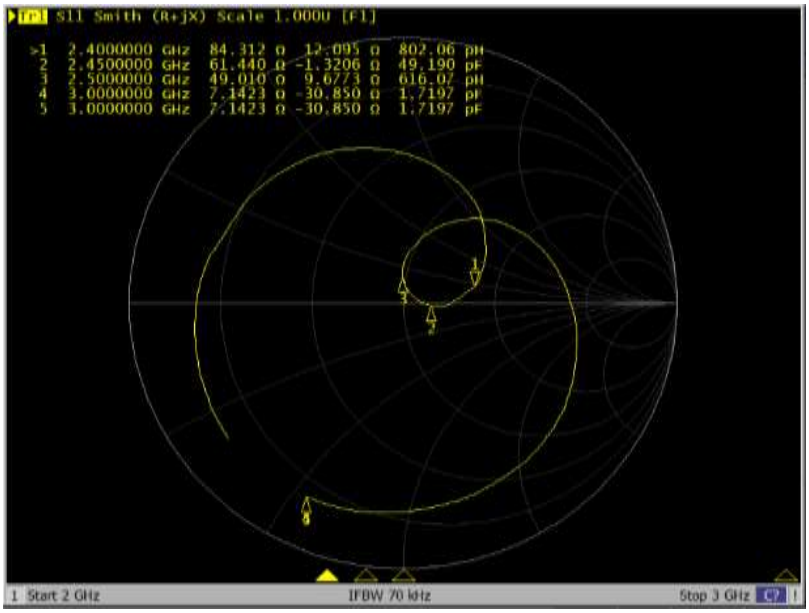


5. Electrical Characterristics

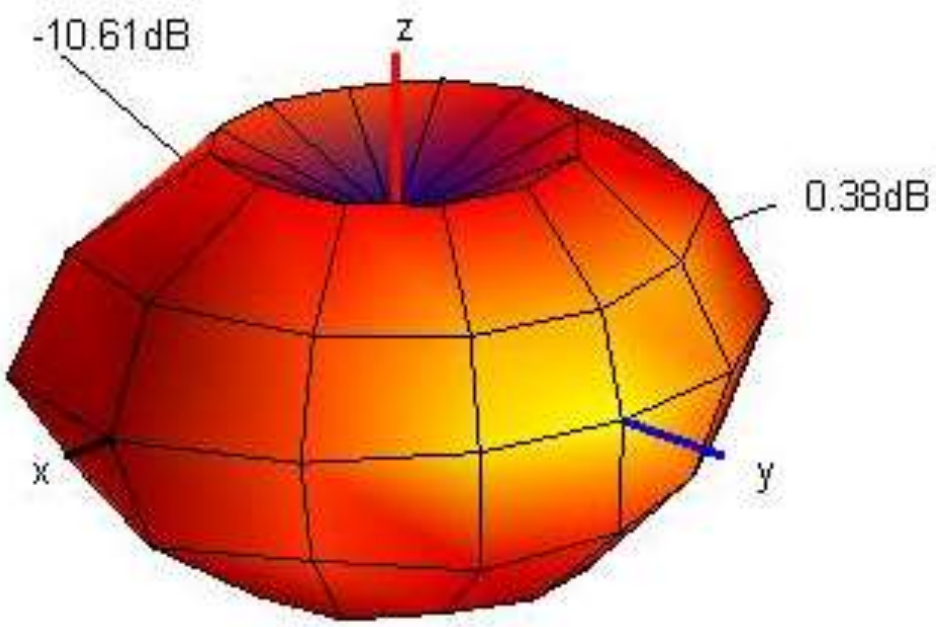
5.1 VSWR



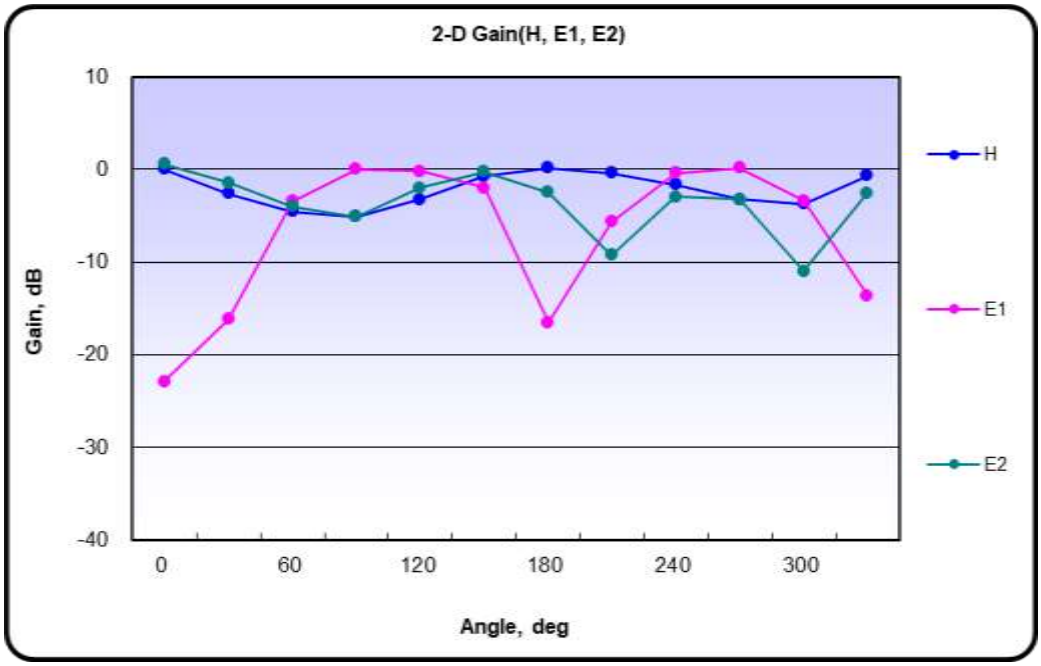
5.2 SMITH CHART



5.3 3D-PLOTs



5.4 2D-GAIN



6. Passive Measurement

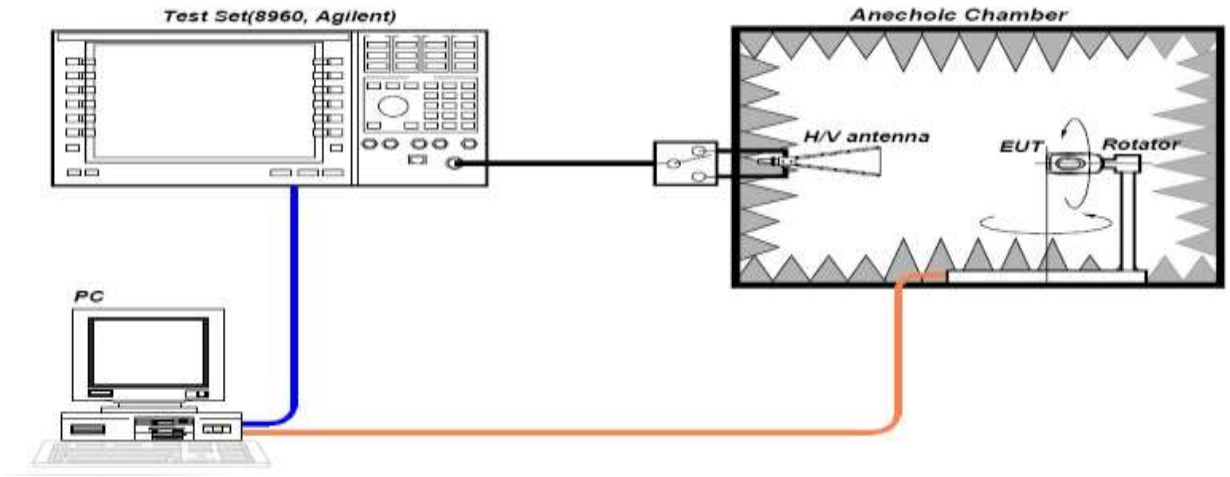
	1	2	3	4	5	6	7	8	9	10
Frequency [MHz]	**2400**	**2405**	**2410**	**2415**	**2420**	**2425**	**2430**	**2435**	**2440**	**2445**
Efficiency [dB]	**-1.98**	**-1.90**	**-1.95**	**-2.01**	**-2.14**	**-2.16**	**-1.94**	**-1.74**	**-1.84**	**-1.81**
Efficiency [%]	**63.3**	**64.6**	**63.9**	**63.0**	**61.0**	**60.8**	**64.0**	**66.9**	**65.5**	**65.9**
TRG$_{\theta}$ [dB]	-3.12	-3.01	-3.08	-3.13	-3.29	-3.36	-3.14	-2.91	-3.02	-3.04
Gain$_{\theta\ Peak}$ [dB]	0.15	0.22	-0.04	0.35	0.18	0.18	0.33	0.74	0.12	0.14
Gain$_{\theta\ Min}$ [dB]	-20.61	-20.60	-21.81	-19.43	-21.09	-17.11	-17.20	-18.03	-16.43	-16.67
TRG$_{\varphi}$ [dB]	-8.37	-8.37	-8.32	-8.44	-8.49	-8.31	-8.12	-8.02	-8.07	-7.89
Gain$_{\varphi\ Peak}$ [dB]	-1.24	-1.38	-1.73	-1.20	-1.66	-1.50	-1.18	-1.39	-0.93	-1.25
Gain$_{\varphi\ Min}$ [dB]	-29.80	-31.32	-33.74	-25.87	-35.04	-28.15	-30.41	-26.91	-29.38	-26.26
UHRG [dB]	-5.13	-5.04	-5.11	-5.18	-5.30	-5.29	-5.07	-4.90	-5.00	-4.93
UHRG/TRG [%]	48.5	48.5	48.2	48.2	48.3	48.6	48.6	48.4	48.3	48.7
H-Plane	-1.78	-1.64	-1.89	-1.80	-1.96	-2.16	-1.88	-1.56	-2.01	-1.81
E1-Plane, AVG [dB]	-3.15	-3.11	-3.14	-3.23	-3.38	-3.45	-3.24	-3.08	-3.17	-3.15
E2-Plane, AVG [dB]	-3.13	-3.04	-3.17	-3.10	-3.38	-3.37	-2.93	-2.78	-2.88	-2.70
Peak Gain [dB]	0.36	0.78	0.69	0.66	0.41	0.65	0.59	0.93	0.63	0.38
Directivity [dB]	2.34	2.68	2.64	2.67	2.56	2.80	2.53	2.68	2.46	2.19
Minimum Gain [dB]	-10.88	-10.08	-9.82	-10.96	-11.06	-12.29	-10.54	-10.04	-10.74	-10.61

	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	**2450**	**2455**	**2460**	**2465**	**2470**	**2475**	**2480**	**2485**	**2490**	**2497**
Efficiency [dB]	**-1.88**	**-1.91**	**-1.98**	**-1.82**	**-1.76**	**-1.72**	**-1.74**	**-2.08**	**-2.31**	**-2.17**
Efficiency [%]	**64.8**	**64.4**	**63.3**	**65.7**	**66.6**	**67.3**	**67.1**	**61.9**	**58.8**	**60.7**
TRG$_{\theta}$ [dB]	-3.12	-3.11	-3.29	-3.13	-3.03	-2.98	-3.01	-3.37	-3.64	-3.47
Gain$_{\theta\ Peak}$ [dB]	0.47	0.59	-0.18	0.05	0.10	0.33	0.30	-0.28	-0.13	0.01
Gain$_{\theta\ Min}$ [dB]	-17.45	-20.61	-16.87	-16.12	-17.29	-18.56	-19.21	-20.37	-23.97	-22.83
TRG$_{\varphi}$ [dB]	-7.93	-8.07	-7.85	-7.69	-7.72	-7.71	-7.69	-7.99	-8.10	-8.03
Gain$_{\varphi\ Peak}$ [dB]	-1.22	-1.57	-0.81	-1.19	-1.11	-0.86	-0.72	-0.44	-1.08	-1.03
Gain$_{\varphi\ Min}$ [dB]	-32.63	-31.04	-32.59	-32.37	-28.77	-29.12	-29.50	-33.09	-30.56	-40.81
UHRG [dB]	-5.01	-5.04	-5.12	-4.92	-4.88	-4.83	-4.87	-5.23	-5.48	-5.36
UHRG/TRG [%]	48.7	48.6	48.6	49.0	48.8	48.8	48.5	48.4	48.2	47.9
H-Plane	-2.04	-1.97	-2.18	-2.08	-1.96	-1.89	-2.01	-2.22	-2.55	-2.40
E1-Plane, AVG [dB]	-3.23	-3.27	-3.49	-3.37	-3.27	-3.10	-3.20	-3.78	-3.83	-3.70
E2-Plane, AVG [dB]	-2.90	-2.75	-3.07	-3.03	-2.76	-2.60	-2.99	-2.98	-3.21	-3.06
Peak Gain [dB]	0.67	0.85	0.27	0.57	0.42	0.59	0.74	0.46	0.05	0.41
Directivity [dB]	2.55	2.75	2.25	2.39	2.18	2.31	2.48	2.54	2.36	2.58
Minimum Gain [dB]	-10.94	-12.48	-12.98	-11.51	-11.21	-12.37	-12.74	-11.30	-12.01	-11.34

Average Efficiency	**-1.94dBi**	**63.99%**
Peak Gain	**0.93dBi**	

7.3 Gain test block diagram

Active test Sysetm
- TRP, NHPRP,UHRP
- TIS, NHPIS, UHIS
- Relative Sensitivity



Passiver test Sysetm
- Efficiency
- Peak Gain, Avg, Gain
- Min, Max PWR