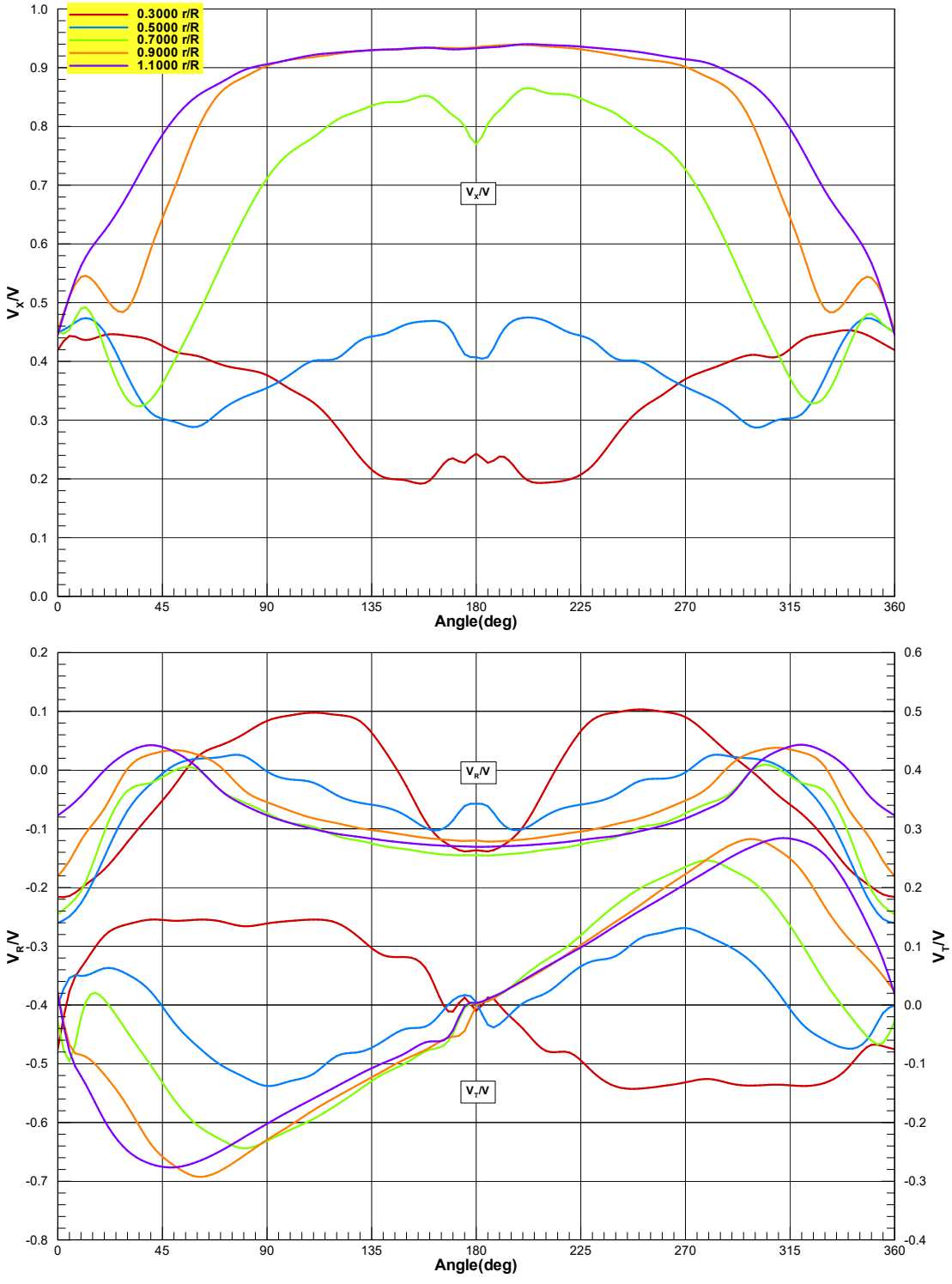
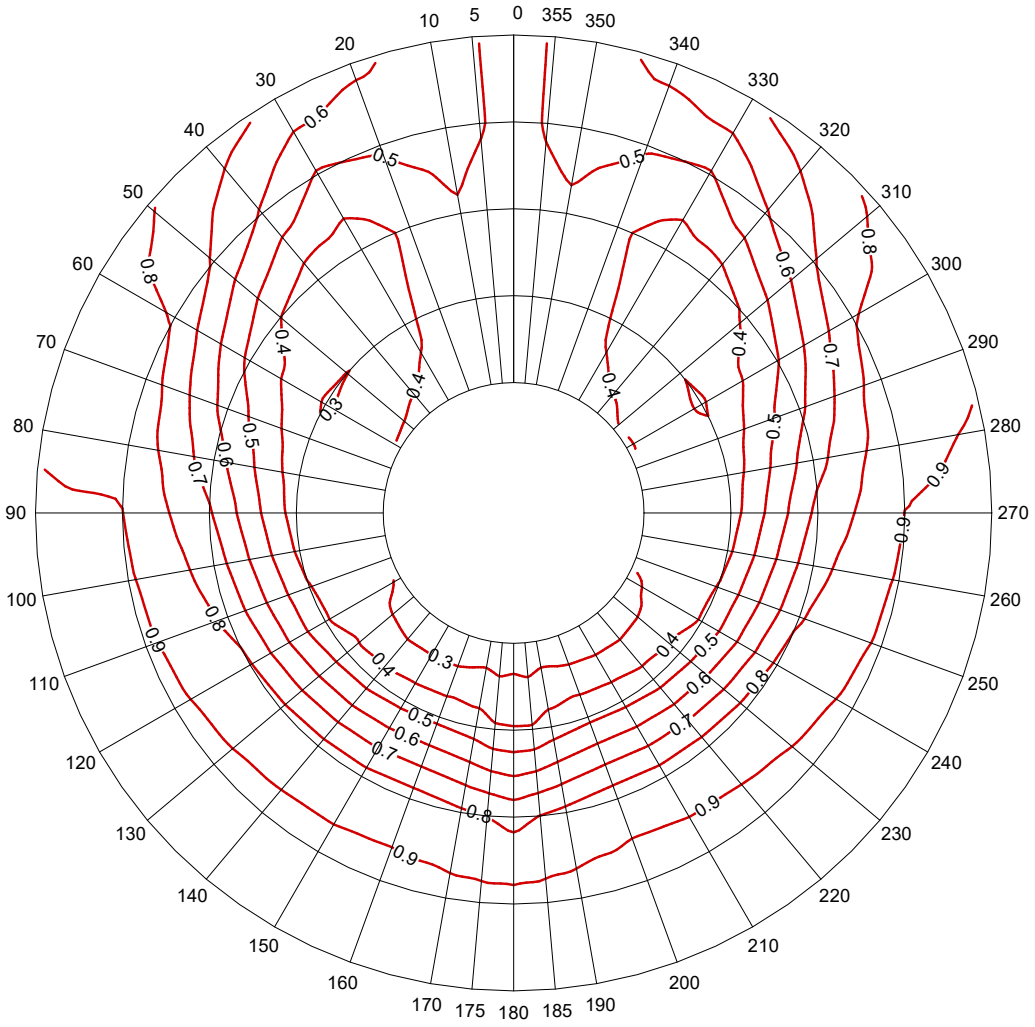
KRISO	KRISO 13K PRODUCT CARRIER	*Preliminary*
Figure 1	**Circumferential Distrubution of Velocity Components (KS2048, Scantling draft, 13.0 knots)**	04/18/2023

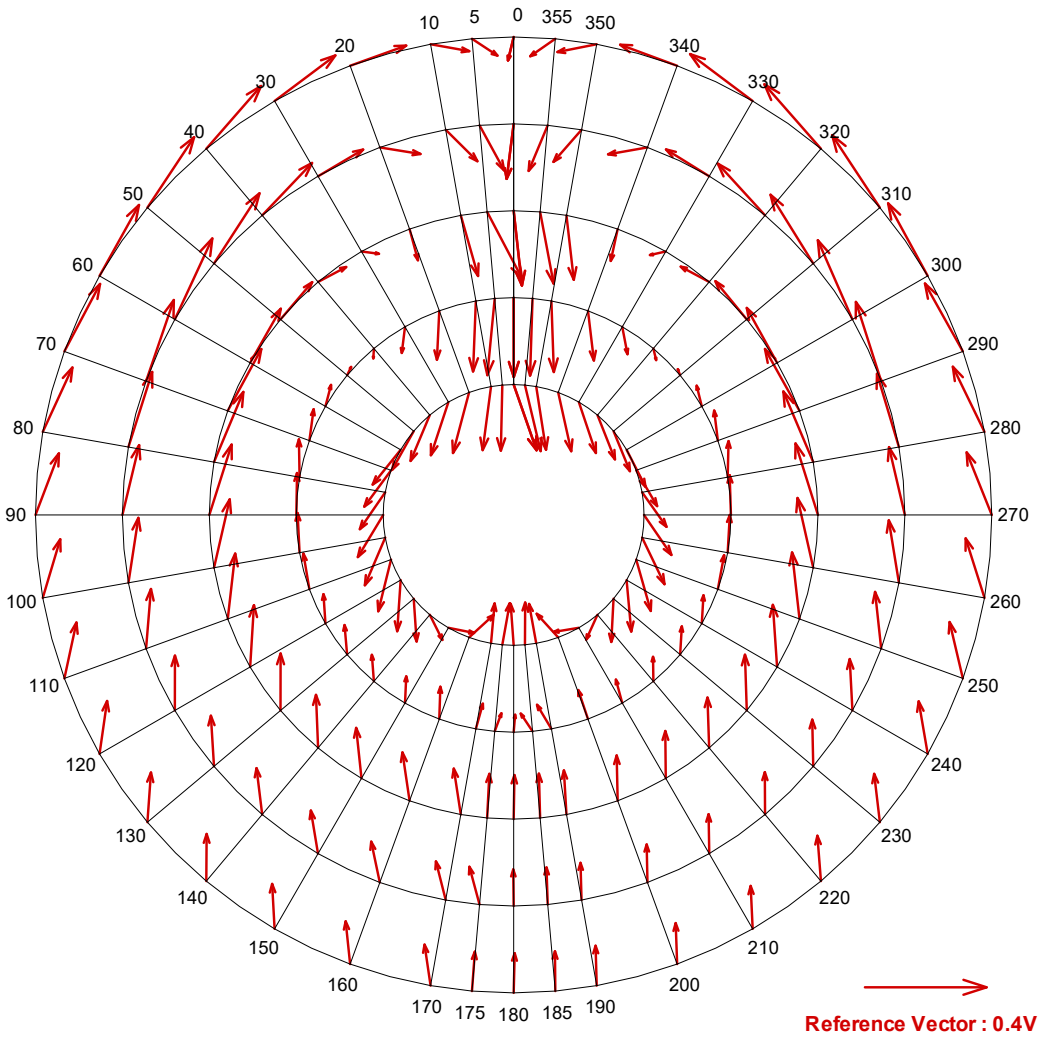


KRISO	KRISO 13K PRODUCT CARRIER	*Preliminary*
		04/18/2023
Figure 2	**Iso-Axial Velocity Contours (KS2048, Scantling draft, 13.0 knots)**	



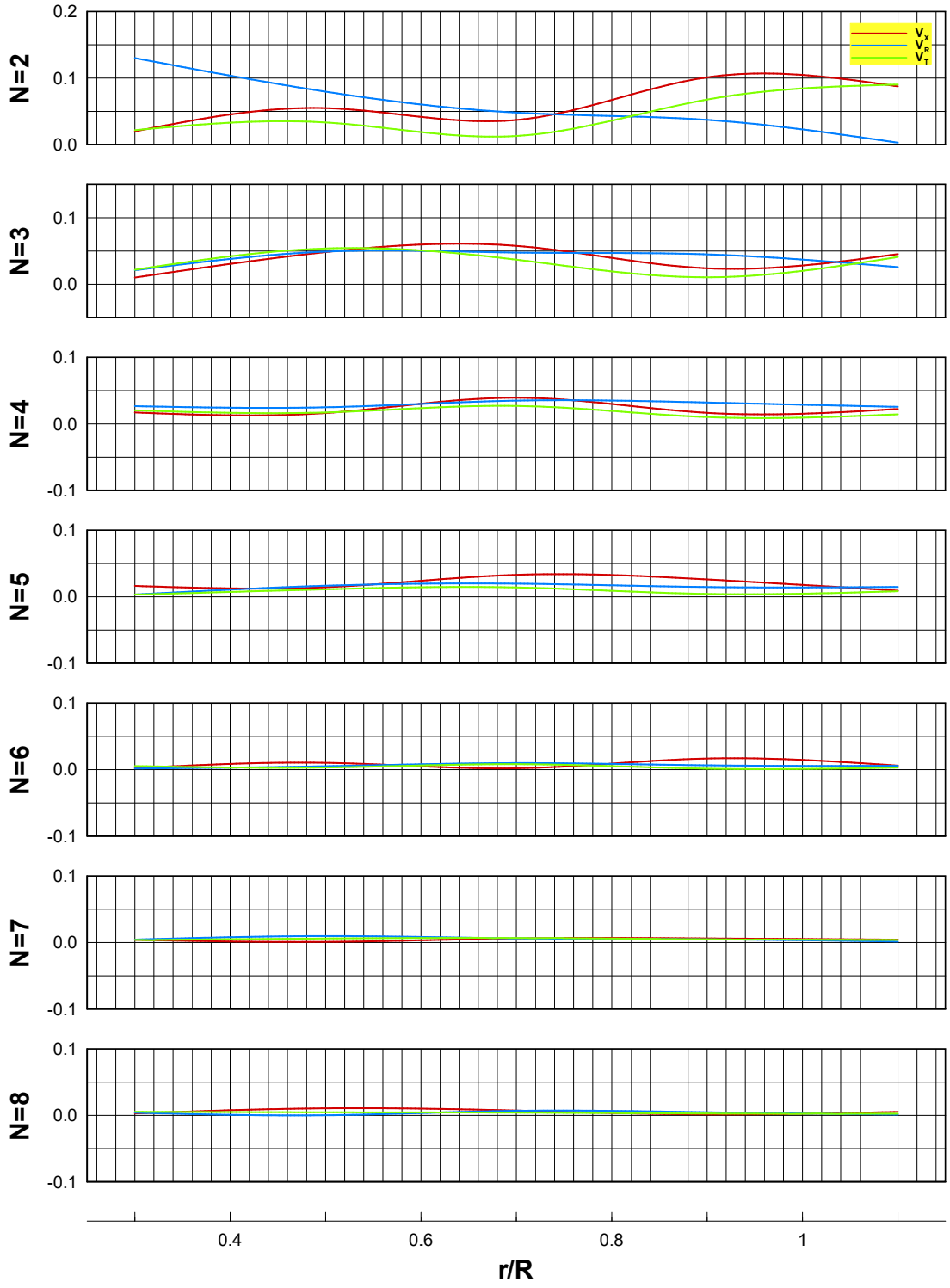
Radii : 0.3000 0.5000 0.7000 0.9000 1.1000

KRISO	KRISO 13K PRODUCT CARRIER	*Preliminary*
		04/18/2023
Figure 3	**Transverse Velocity Vectors (KS2048, Scantling draft, 13.0 knots)**	

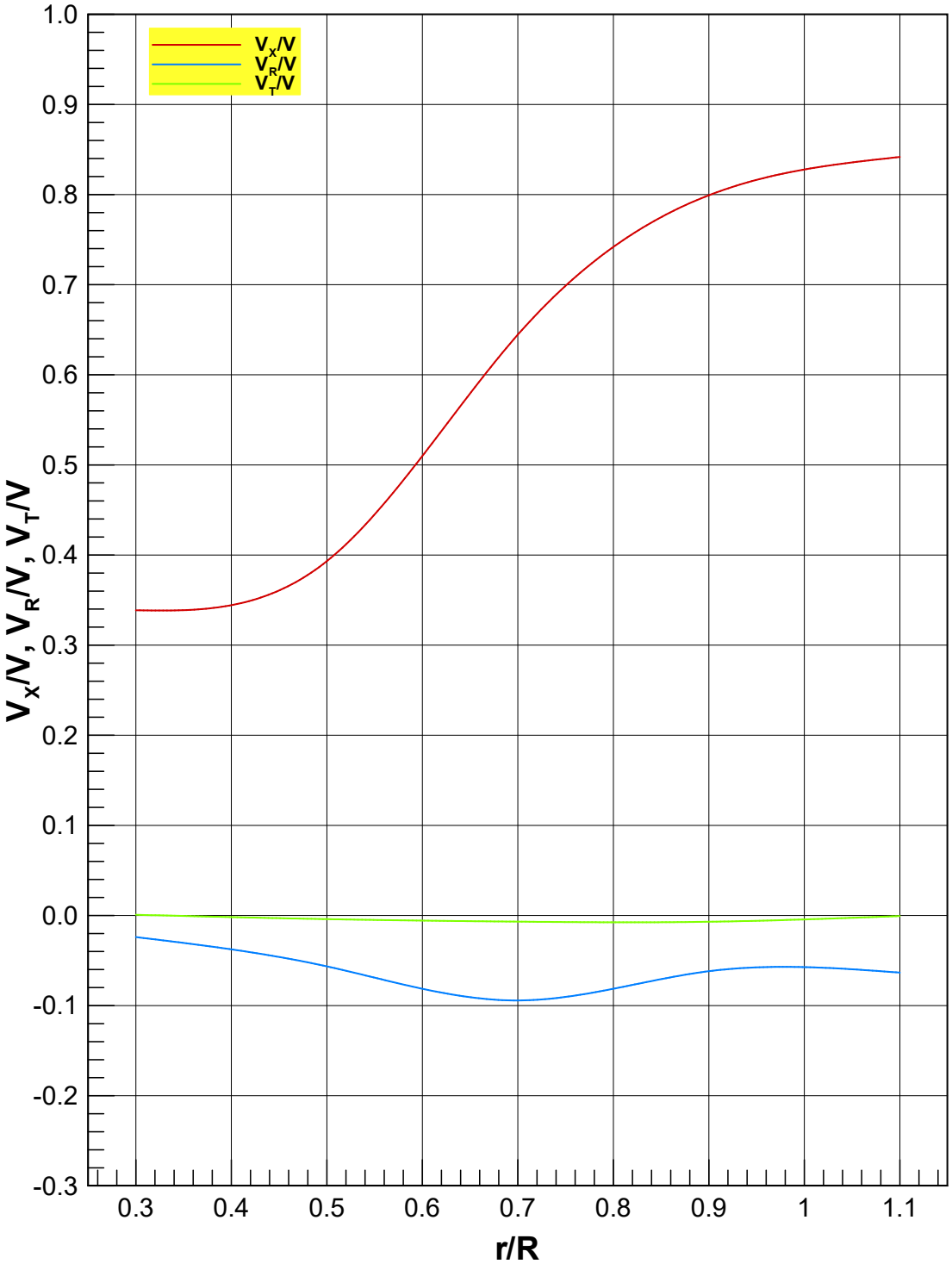


Radii : 0.3000 0.5000 0.7000 0.9000 1.1000

KRISO	KRISO 13K PRODUCT CARRIER	*Preliminary*
		04/18/2023
Figure 4	**Radial Distibution of Harmonic Amplitudes of Velocities (KS2048, Scantling draft, 13.0 knots)**	



KRISO	KRISO 13K PRODUCT CARRIER	*Preliminary*
		04/18/2023
Figure 5	**Radial Distibution of circumferential Mean Velocity Components (KS2048, Scantling draft, 13.0 knots)**	



KRISO	KRISO 13K PRODUCT CARRIER	*Preliminary*
		04/18/2023
Table 1	**Measured Velocity Components and Circumferential Mean Velocities-I (KS2048, Scantling draft, 13.0 knots)**	

Test Number	S2048K05	Load Condition	Scantling		Ship Speed(knots)	13.00	Water Temp.(deg)	14.5
Rake Number	M3-5	TF/TA(m)	8.55	8.55	Model Speed(m/s)	1.5261	Model Prop. Dia(m)	0.2500

r/R	Angle (Deg.)	0	5	10	20	30	40	50	60	70	80	90
		100	110	120	130	140	150	160	170	175	180	185
		190	200	210	220	230	240	250	260	270	280	290
0.3000	VX/V	0.419	0.443	0.438	0.445	0.444	0.436	0.417	0.409	0.395	0.387	0.376
		0.353	0.330	0.289	0.237	0.203	0.197	0.197	0.235	0.227	0.243	0.227
		0.238	0.204	0.194	0.199	0.223	0.273	0.316	0.343	0.370	0.386	0.401
	VR/V	-0.216	-0.214	-0.201	-0.169	-0.123	-0.075	-0.027	0.023	0.042	0.061	0.084
		0.093	0.098	0.094	0.083	0.037	-0.028	-0.098	-0.131	-0.139	-0.136	-0.139
		-0.132	-0.098	-0.030	0.039	0.086	0.098	0.103	0.099	0.090	0.060	0.025
	VT/V	-0.075	0.023	0.063	0.118	0.137	0.145	0.143	0.145	0.142	0.134	0.139
		0.143	0.145	0.140	0.114	0.085	0.082	0.051	-0.011	0.013	-0.010	0.013
		-0.001	-0.040	-0.078	-0.081	-0.114	-0.139	-0.142	-0.138	-0.132	-0.126	-0.134
0.5000	VX/V	0.449	0.459	0.472	0.451	0.375	0.313	0.298	0.289	0.316	0.339	0.355
		0.378	0.401	0.405	0.436	0.446	0.463	0.469	0.448	0.412	0.407	0.407
		0.443	0.474	0.469	0.449	0.435	0.405	0.401	0.378	0.356	0.338	0.314
	VR/V	-0.261	-0.249	-0.227	-0.149	-0.069	-0.024	0.008	0.019	0.022	0.024	-0.002
		-0.016	-0.022	-0.043	-0.056	-0.063	-0.078	-0.101	-0.086	-0.061	-0.057	-0.062
		-0.086	-0.101	-0.078	-0.062	-0.056	-0.042	-0.019	-0.015	-0.004	0.024	0.023
	VT/V	-0.001	0.046	0.049	0.062	0.052	0.023	-0.029	-0.070	-0.102	-0.122	-0.138
		-0.130	-0.117	-0.087	-0.080	-0.061	-0.040	-0.033	0.008	0.017	0.005	-0.034
		-0.033	0.003	0.020	0.051	0.075	0.083	0.112	0.123	0.131	0.116	0.097
0.7000	VX/V	0.450	0.454	0.490	0.424	0.335	0.335	0.399	0.477	0.562	0.643	0.712
		0.756	0.782	0.811	0.827	0.840	0.843	0.851	0.819	0.800	0.770	0.804
		0.827	0.864	0.857	0.854	0.839	0.822	0.792	0.768	0.727	0.662	0.581
	VR/V	-0.246	-0.229	-0.206	-0.106	-0.035	-0.022	-0.001	0.001	-0.034	-0.055	-0.073
		-0.090	-0.097	-0.113	-0.120	-0.129	-0.135	-0.141	-0.145	-0.145	-0.145	-0.146
		-0.144	-0.141	-0.136	-0.131	-0.122	-0.114	-0.098	-0.091	-0.074	-0.057	-0.037
	VT/V	-0.027	-0.096	-0.021	0.009	-0.046	-0.103	-0.161	-0.205	-0.229	-0.244	-0.231
		-0.213	-0.194	-0.170	-0.143	-0.117	-0.098	-0.076	-0.049	-0.005	0.003	0.009
		0.017	0.048	0.077	0.102	0.137	0.170	0.197	0.217	0.235	0.246	0.230
0.9000	VX/V	0.452	0.510	0.544	0.512	0.489	0.591	0.693	0.793	0.858	0.884	0.903
		0.913	0.918	0.924	0.928	0.931	0.932	0.934	0.933	0.933	0.935	0.937
		0.938	0.939	0.936	0.934	0.928	0.922	0.915	0.910	0.901	0.883	0.859
	VR/V	-0.181	-0.155	-0.120	-0.066	0.002	0.027	0.034	0.026	0.005	-0.034	-0.055
		-0.070	-0.082	-0.090	-0.099	-0.105	-0.111	-0.116	-0.120	-0.121	-0.120	-0.122
		-0.121	-0.118	-0.113	-0.107	-0.101	-0.092	-0.083	-0.069	-0.052	-0.029	0.011
	VT/V	0.023	-0.068	-0.085	-0.118	-0.172	-0.236	-0.273	-0.292	-0.282	-0.257	-0.230
		-0.205	-0.179	-0.156	-0.134	-0.112	-0.091	-0.073	-0.054	-0.044	-0.001	0.006
		0.018	0.040	0.063	0.089	0.115	0.142	0.168	0.197	0.223	0.250	0.273
1.1000	VX/V	0.445	0.510	0.562	0.622	0.683	0.754	0.813	0.852	0.874	0.896	0.906
		0.914	0.922	0.926	0.929	0.931	0.932	0.934	0.931	0.932	0.933	0.934
		0.936	0.940	0.939	0.937	0.934	0.931	0.927	0.920	0.914	0.908	0.890
	VR/V	-0.077	-0.063	-0.045	-0.001	0.030	0.042	0.031	0.005	-0.034	-0.059	-0.077
		-0.090	-0.100	-0.109	-0.114	-0.120	-0.124	-0.127	-0.129	-0.130	-0.131	-0.131
		-0.130	-0.128	-0.126	-0.122	-0.117	-0.112	-0.105	-0.095	-0.083	-0.065	-0.041
	VT/V	0.018	-0.079	-0.121	-0.196	-0.248	-0.271	-0.277	-0.267	-0.249	-0.225	-0.202
		-0.180	-0.159	-0.138	-0.117	-0.099	-0.081	-0.062	-0.043	-0.002	0.003	0.010
		0.019	0.042	0.065	0.087	0.110	0.135	0.159	0.182	0.206	0.229	0.253

r/R	0.300	0.400	0.500	0.600	0.700	0.800	0.900	1.000
VX/V	0.339	0.356	0.393	0.496	0.645	0.743	0.799	0.827
VR/V	-0.024	-0.038	-0.056	-0.081	-0.094	-0.081	-0.062	-0.057
VT/V	0.001	-0.002	-0.004	-0.006	-0.007	-0.008	-0.007	-0.004

Volumetric Mean of VX/V =	0.629
Nominal Wake Fraction(WN) =	**0.371**

KRISO	KRISO 13K PRODUCT CARRIER	*Preliminary*
Table 2	**Measured Velocity Components and Circumferential Mean Velocities-II (KS2048, Scantling draft, 13.0 knots)**	04/18/2023

Test Number	S2048K05	Load Condition	Scantling		Ship Speed(knots)	13.00	Water Temp.(deg)	14.5
Rake Number	M3-5	TF/TA(m)	8.55	8.55	Model Speed(m/s)	1.5261	Model Prop. Dia(m)	0.2500

r/R	Angle (Deg.)	300	310	320	330	340	350	355	360
0.3000	VX/V	0.411	0.408	0.436	0.447	0.453	0.441	0.430	0.419
	VR/V	-0.007	-0.044	-0.075	-0.117	-0.167	-0.199	-0.212	-0.216
	VT/V	-0.137	-0.136	-0.138	-0.133	-0.107	-0.068	-0.070	-0.075
0.5000	VX/V	0.287	0.301	0.310	0.373	0.449	0.473	0.463	0.449
	VR/V	0.019	0.007	-0.023	-0.070	-0.147	-0.229	-0.254	-0.261
	VT/V	0.067	0.020	-0.032	-0.060	-0.074	-0.049	-0.014	-0.001
0.7000	VX/V	0.493	0.411	0.340	0.340	0.422	0.481	0.463	0.450
	VR/V	0.004	0.002	-0.022	-0.036	-0.106	-0.204	-0.231	-0.246
	VT/V	0.207	0.162	0.104	0.039	-0.014	-0.061	-0.065	-0.027
0.9000	VX/V	0.794	0.694	0.591	0.489	0.509	0.542	0.510	0.452
	VR/V	0.032	0.038	0.030	0.005	-0.065	-0.120	-0.155	-0.181
	VT/V	0.282	0.264	0.228	0.167	0.114	0.073	0.049	0.023
1.1000	VX/V	0.867	0.825	0.762	0.690	0.633	0.567	0.513	0.445
	VR/V	0.007	0.033	0.043	0.031	0.001	-0.048	-0.064	-0.077
	VT/V	0.272	0.284	0.279	0.255	0.200	0.123	0.077	0.018

r/R	0.300	0.400	0.500	0.600	0.700	0.800	0.900	1.000
VX/V	0.339	0.356	0.393	0.496	0.645	0.743	0.799	0.827
VR/V	-0.024	-0.038	-0.056	-0.081	-0.094	-0.081	-0.062	-0.057
VT/V	0.001	-0.002	-0.004	-0.006	-0.007	-0.008	-0.007	-0.004

Volumetric Mean of VX/V =	0.629
Nominal Wake Fraction(WN) =	**0.371**

KRISO	KRISO 13K PRODUCT CARRIER	*Preliminary*
		04/18/2023
Table 3	**Harmonic Analysis of Velocity Components (KS2048, Scantling draft, 13.0 knots)**	

Test Number	S2048K05	Load Condition	Scantling		Ship Speed(knots)	13.00	Water Temp.(deg)	14.5
Rake Number	M3-5	TF/TA(m)	8.55	8.55	Model Speed(m/s)	1.5261	Model Prop. Dia(m)	0.2500

	k	0	1	2	3	4	5	6	7	8	9	10
r/R						Harmonic analysis of axial velocity component						
0.3000	a(k)	0.339	0.127	-0.020	-0.010	0.017	-0.016	0.002	-0.004	-0.003	0.000	0.001
	b(k)	0.000	0.003	-0.003	-0.001	0.002	-0.002	-0.001	-0.001	0.000	0.001	0.001
	c(k)	0.339	0.127	0.020	0.010	0.017	0.016	0.002	0.004	0.003	0.001	0.001
0.5000	a(k)	0.393	-0.037	0.055	0.048	0.016	0.014	-0.010	0.001	-0.011	-0.001	-0.007
	b(k)	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.001	-0.001	0.000	-0.001
	c(k)	0.393	0.037	0.055	0.048	0.016	0.014	0.010	0.001	0.011	0.001	0.007
0.7000	a(k)	0.645	-0.253	-0.037	0.058	0.039	0.033	0.002	0.006	-0.007	-0.003	-0.012
	b(k)	0.000	-0.008	0.001	0.000	0.003	0.000	0.000	0.000	0.001	0.000	0.000
	c(k)	0.645	0.253	0.037	0.058	0.039	0.033	0.002	0.006	0.007	0.003	0.012
0.9000	a(k)	0.799	-0.212	-0.101	-0.024	0.017	0.026	0.017	0.006	-0.001	-0.005	-0.006
	b(k)	0.000	0.000	0.000	-0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
	c(k)	0.799	0.212	0.101	0.024	0.017	0.026	0.017	0.006	0.001	0.005	0.006
1.1000	a(k)	0.842	-0.151	-0.088	-0.045	-0.022	-0.009	-0.006	-0.004	-0.005	-0.005	-0.006
	b(k)	0.000	-0.006	-0.002	-0.001	0.001	0.000	-0.001	-0.001	0.000	0.000	0.000
	c(k)	0.842	0.151	0.088	0.045	0.022	0.009	0.006	0.004	0.005	0.005	0.006
r/R						Harmonic analysis of radial velocity component						
0.3000	a(k)	-0.024	-0.054	-0.130	0.021	-0.026	0.002	-0.002	-0.004	0.004	-0.003	0.000
	b(k)	0.000	0.002	0.003	0.000	-0.004	-0.003	0.000	0.002	0.002	0.000	-0.001
	c(k)	0.024	0.054	0.130	0.021	0.027	0.003	0.002	0.004	0.004	0.003	0.001
0.5000	a(k)	-0.056	-0.017	-0.080	-0.049	-0.025	-0.017	-0.005	-0.010	0.000	-0.004	0.005
	b(k)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	c(k)	0.056	0.017	0.080	0.049	0.025	0.017	0.005	0.010	0.000	0.004	0.005
0.7000	a(k)	-0.094	0.029	-0.048	-0.048	-0.035	-0.020	-0.010	-0.006	-0.007	-0.006	-0.003
	b(k)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	c(k)	0.094	0.029	0.048	0.048	0.035	0.020	0.010	0.006	0.007	0.006	0.003
0.9000	a(k)	-0.062	0.046	-0.037	-0.045	-0.032	-0.015	-0.006	-0.005	-0.005	-0.003	0.000
	b(k)	0.000	-0.001	-0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	c(k)	0.062	0.046	0.037	0.045	0.032	0.015	0.006	0.005	0.005	0.003	0.000
1.1000	a(k)	-0.063	0.075	-0.003	-0.026	-0.026	-0.015	-0.006	-0.001	-0.001	-0.002	-0.002
	b(k)	0.000	0.002	-0.001	-0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000
	c(k)	0.063	0.075	0.003	0.026	0.026	0.015	0.006	0.001	0.001	0.002	0.002
r/R						Harmonic analysis of tangential velocity component						
0.3000	a(k)	0.001	-0.002	-0.004	-0.004	-0.003	-0.003	-0.004	-0.003	-0.003	-0.003	-0.003
	b(k)	0.000	0.158	0.021	0.021	0.020	0.002	0.004	0.002	0.004	-0.005	0.005
	c(k)	0.001	0.158	0.022	0.022	0.020	0.003	0.005	0.004	0.005	0.006	0.006
0.5000	a(k)	-0.004	0.004	-0.001	0.003	0.001	0.001	0.003	0.000	0.002	0.000	0.002
	b(k)	0.000	-0.085	0.033	0.054	0.017	0.011	0.000	0.006	-0.004	0.003	0.000
	c(k)	0.004	0.085	0.033	0.054	0.017	0.011	0.003	0.006	0.005	0.003	0.002
0.7000	a(k)	-0.007	-0.004	-0.013	-0.007	-0.007	-0.009	-0.004	-0.006	-0.003	-0.005	-0.002
	b(k)	0.000	-0.207	0.003	0.036	0.026	0.011	0.007	0.002	0.003	0.000	-0.002
	c(k)	0.007	0.207	0.013	0.037	0.027	0.014	0.008	0.007	0.004	0.005	0.003
0.9000	a(k)	-0.007	0.006	-0.003	0.001	0.001	-0.001	0.000	-0.001	0.000	0.000	0.001
	b(k)	0.000	-0.244	-0.068	-0.011	0.010	0.004	0.001	-0.005	-0.003	-0.004	-0.002
	c(k)	0.007	0.244	0.068	0.011	0.010	0.004	0.001	0.005	0.003	0.005	0.002
1.1000	a(k)	-0.001	0.005	-0.002	0.000	0.001	-0.001	0.001	-0.001	0.002	-0.001	0.002
	b(k)	0.000	-0.240	-0.090	-0.041	-0.014	-0.008	-0.003	-0.004	-0.002	-0.002	-0.002
	c(k)	0.001	0.240	0.090	0.041	0.014	0.008	0.003	0.004	0.002	0.002	0.002