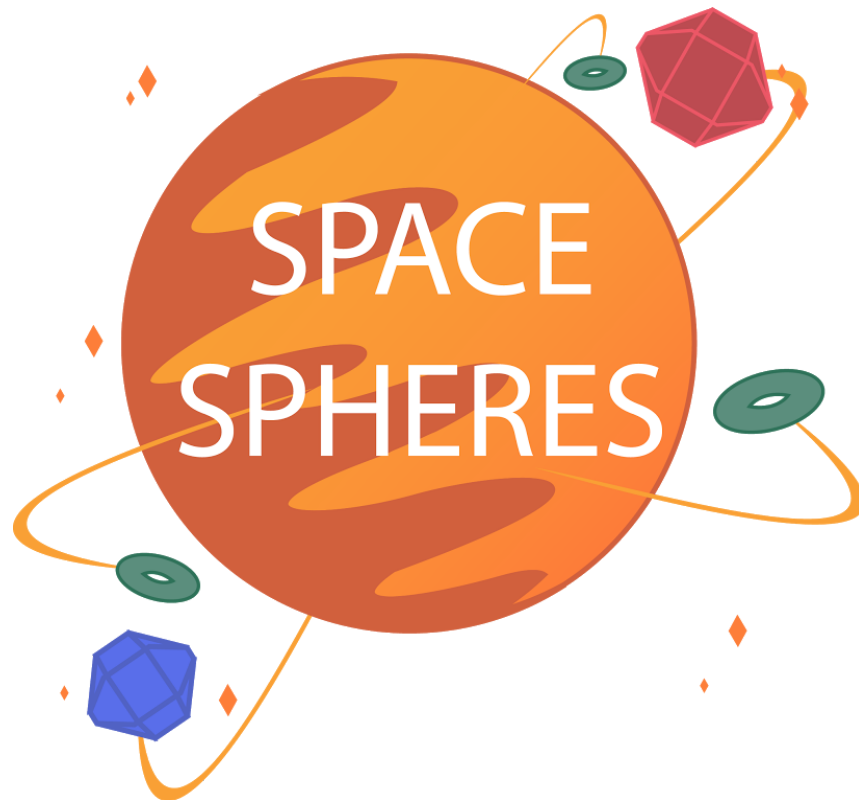


# ZERO ROBOTICS

HS TOURNAMENT 2016

## Game Manual

Ver. 1.2.0



SPACE-S (Satellite Positioning and Constructing Entities -



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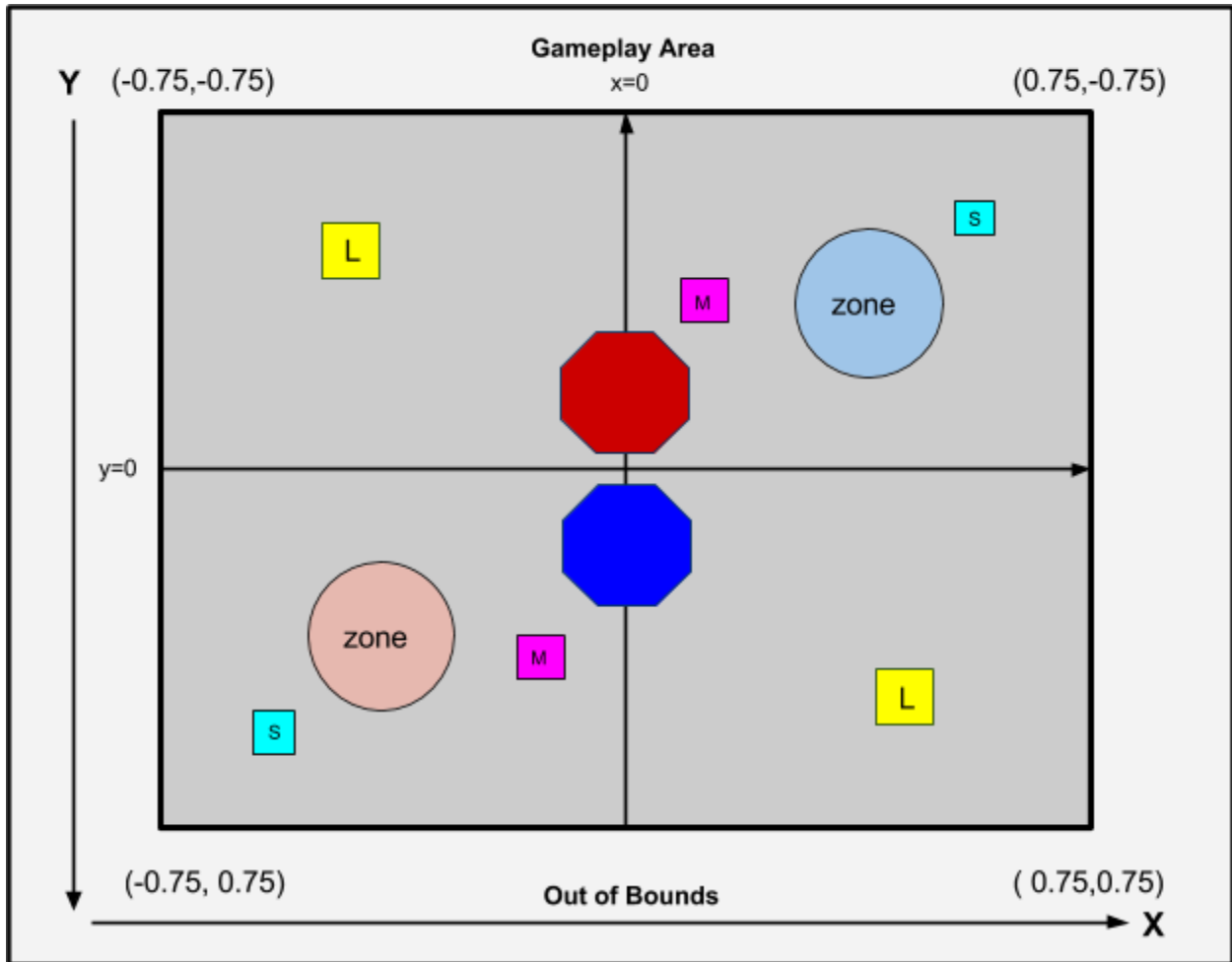
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# ZRHS 2016 Game Manual

## 30I co g'Qxgtxlgy '''

Hki wtg'3<I co g'Qxgtxlgy '\*y kj 'czgu'eqttgevgf 'epf 'z.{'eqqtf lpcvgu'eqttgevgf +'

"



S: Small, M: Medium, L: Large

Diagram not to scale

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O vej gu'qh'URCEG/URJ GTGU'y kn'dg'r rc{ gf "dgw ggp'y q"URJ GTGU."eqptqmgf "d{ 'r tqi tco u'y tkwgp"d{ "

wy q'ugr ctvg'vgco u0Gcej 'vgco 'y kn'eqo r gvg'vq'j cxg'vj g'o quv'r qlpw'y j gp'vj g'tqwpf "ko g'ku'wr 0Gcej "

tqwpf 'rcuu'3: 2'ugeqpf u0Rqkpw'o c{ "dg'i gpgtcvgf "d{ "eqmgevp'i 'vj g'kgo u'\*tgr t gugpvkpi 'vj g'ucvgnkg"

r lgegu-'ur tgcf 'cetquu'vj g'r rc{ kpi 'hgrf "epf 'f tqr r kpi 'vj go 'qhh'lpukf g'qpgau'cuugo dn{ 'l qpg.'tgr t gugpvkpi 'vj g'

kf gcnr rceg'vq'eqput we'c'ucvgnkg0"

### 30B"Qxgtxkgy "qh'I co g'Hgcwtgu"

Vj ku'i co g'hgcwtgu"Ucvgnkg'Rqukkqpkpi "U{ uvgo "URU+kgo u."Cuugo dnf \ qpgu."cpf "Ucvgnkg'Rkgeg'Kgo u0'

### 30B"Ucvgnkg'Rqukkqpkpi "U{ uvgo "URU+kgo u"

Cv'vj g'uctv'qh'vj g'i co g.'vj gtg'ctg'vj tgg"Ucvgnkg'Rqukkqpkpi "U{ uvgo "URU+kgo u'i kxgp"q"gej 'URJ GTG0' Vgco u'pggf "q'r meg'vj gug'vj tgg"URU+kgo u'ht"cr ctv'q'hqto "c"v'kcp i ng="vj g'ctgc"qh'vj g"URU/v'kcp i wcvgf " tgi kpp'ku'wugf "q'ecre wcvg'vj g'f kco gvg't'qh'c'v'gco au'cuugo dnf | qpg0Vj g'i tgcvg't'vj g'ctgc'ku.'vj g'o qtg" r tgekugf "vj g{ 'y knidg'kphqto gf "qh'vj g'hqecv'kqp"qh'vj gk"URCEG/U0'cuugo dnf | qpg0Tgcf "o qtg'cdqww'vj gug" | qpgu'kp"ugev'kqp"30B00"

### 30B0"Cuugo dnf \ qpgu"

Vj g'cuugo dnf | qpg'ku'c'ur j gtlecni'qecv'kqp'y j kej "f qgu'pqv'kpvgt'htg'y kj "gzkukpi "ucvgnkg'qtdku."cu'ej qugp" tcpf qo n' "htqo "c'ur gekle'tcpi g'qh'eqqtf kpcv'g0'ku'cdqww'vj g'uk' g'qh'qpg"URCEG/U.'y kj "c'f kco gvg't'qh' 204'o gvgtu0Qpeg'cm'vj tgg"URU+kgo u'ctg'r megf . "vj g'r n{ gt'y knidg'cdng'q'wug'vj g'hwpev'kqp"ã~-->Á &ã↑æÈ&æ\X~^æÇã->~ã\Á~^æØ^ã~YHÿD "q'rgctp'vj g'guko cvgf | qpg.'vj cv'ku'c'ur j gtlecni| qpg'y kj kp" c'egt v'kq'tcf kku'qh'gttqt'htqo 'vj g'v'wg'egpvg't'qh'vj gk"cuugo dnf | qpg0Vj g'tcf kku'qh'gttqt'qh'vj g'guko cvgf " | qpg'y knidg'ecre wcvg' "cu'kpxgtugf "r tqr qt v'kpcn'v'q'vj g'ctgc"qh'vj g'v'kcp i ng'hqto gf "d{ 'vj g"URU0

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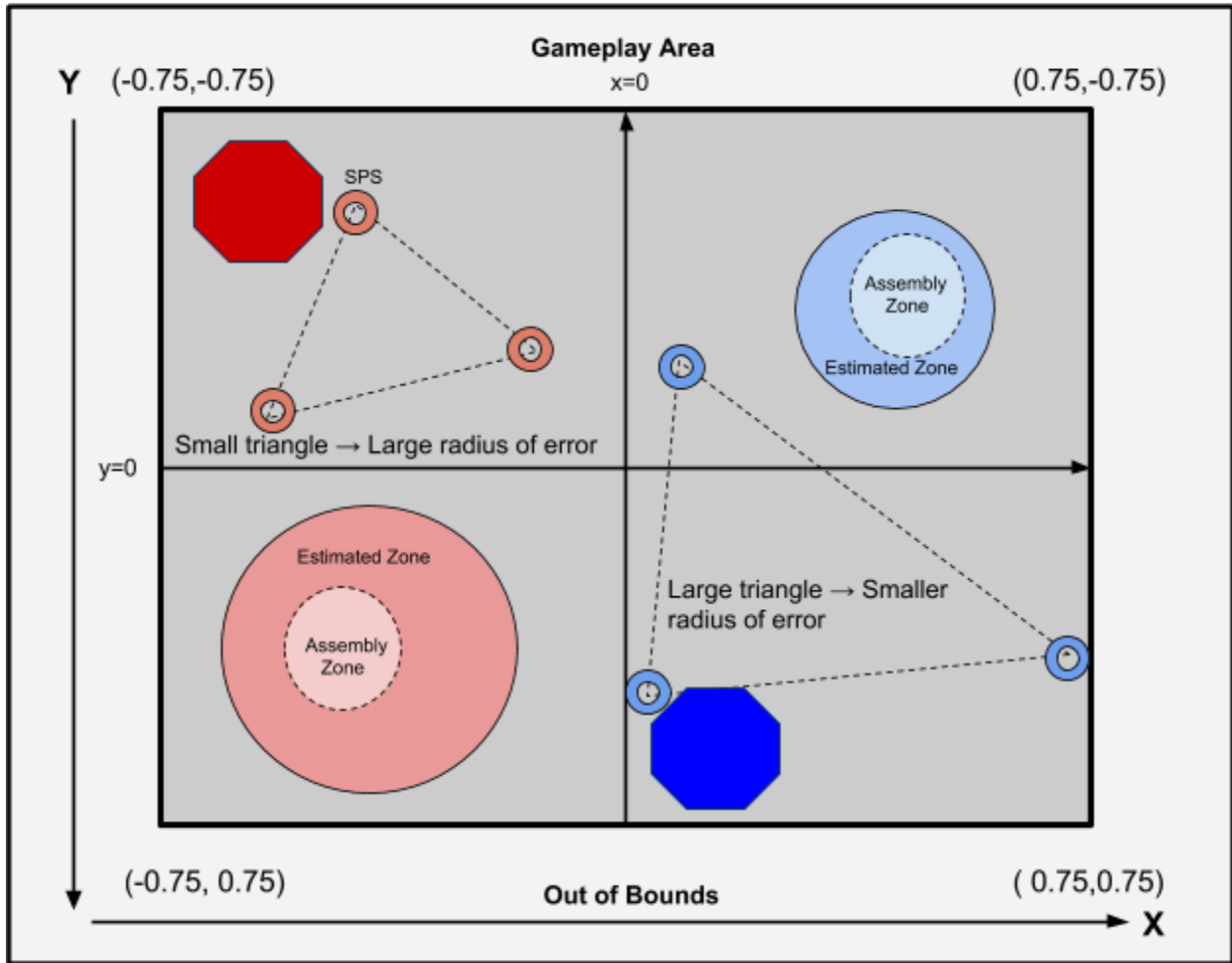


Diagram not to scale

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3006 "Nqecv'kpu'qh'Kgo u'cpf 'URCEG/U"

Vj g'nqecv'kpu'qh'ucvgmkv'kgo u. 'cpf 'vj g'qr r qpgp'URCEG/U'ctg'tg'xg'cngf 'v'vj g'v'gco u0Vgco u'gpvt'vj g'

SPACE-SPHERES; Ua Y'A Ubi U''

ur gekhgf 'kgo 'F au'f guetkdgf 'kp'ugevqp'3065+'cpf 'wug'vj g'hwpevqp" { ~->äÁ&æ\Ø\æ↑Q~´ Çà->~á\ Á  
\*~bYÿÊÄ↔^ \Á↔\æ↑ØEDÁ "q'i gv'vj g'hwpevqp'qh'vj g'kgo 0C"URCEG/U'ecp'o qxg'cp{y j gtg'qp'vj g'o cr"  
cpf "j cxg'hwzgf 'kp'kcnr qukvqp" f guetkdgf 'kp'ugevqp'3067+0'

3080'F qemkpi "

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r qlp'kpi "cv'vj g'kgo "cpf "ecmkpi "vj g'f qemkpi "hwpevqp'0Vj g'URCEG/U'pbggf u'vq"uvqr 'kp'hwpevqp'qh'vj g'kgo "cv'c"  
egt'vlp'f kwcpvg'vq'r lenlwr "cpf "vj g'kgo "y km'dg'tgrcugf "cv'vj g'uco g'f kwcpvg'cy c{ "f guetkdgf 'kp'ugevqp"  
3064+0

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Vj g' gtq'Tqdq'leu'J ki j "Uej qqn'Vqwtqco gpv'4238'y km'dg'eqpf wexgf 'kp'uko wvkvqp'0Vj g'i co g'ku'r r { gf 'kp"  
cp'ctgc'ecmgf "vj g'hwpevqp" qpg'0K'r r { gtu'hwcxg'vj g'hwpevqp" qpg. "vj g' "y km'dg'eqpukf gtgf "qww'qh"  
dqwpf u'0Vj g'hwpevqp'qh'vj g'URJ GTGU'ku'o gcuwtgf 'hwqo "vj g'egpvg'qh'vj g'ucvgnksg'0

Vj g'hwpevqp" qpg'hwq'vj g'i co g'j cu'vj g'hwqy kpi "f ko gpukqpu<

Vcdrg'3-<hwpevqp" qpg'F ko gpukqpu"

	2D	3D	Alliance
Z"jo _"	]207"z- 207_ "	]207"z- 207_ "	]207"z- 207_ "
[ "jo _"	]207"z- 207_ "	]207"z- 207_ "	]207"z- 207_ "
\ jo _"	207"	]207"z- 207_ "	]207"z- 207_ "

"

C"URCEG/U'y km'dg'r gpcrk gf "c'r qt vqp'qh'ku'hwgn'cmqecvqp'hwq'gxgt { 'ugeqpf 'kv't go ckpu'qww'qh'vj gug"  
dqwpf u'0"

"

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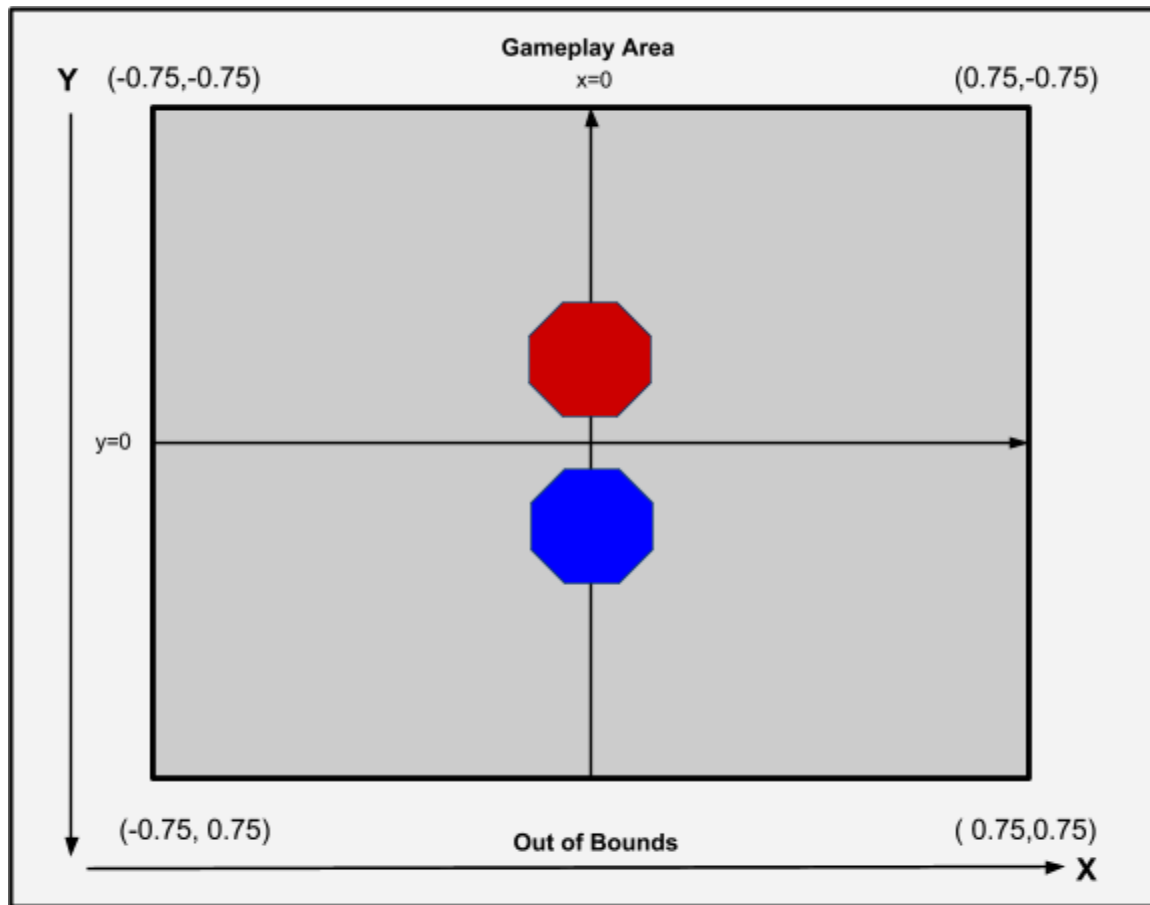


Diagram not to scale

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Hqt "y g"4F "i co g. 'y g'ctgpc'ku'c'r rcp'g'y kj "qpn' 'Z' 'cpf' 'l' 'f ko gpukqpu0Vj g'kgo u'y kn'dg'mecv'gf "cv'hz'gf " r q'kw'y j lej 'etgcv'c'u'f o o g'vle'o cr 0Vj gtg'ctg'c'v'q'w'q'h'ukz'kgo u'v'y q'uo cm "y q'o gf kwo "cpf 'y q" rcti g'0Vj gtg'ku'o qtg'k'phqto cvkq'qp'kgo u'k'p'ugevkp"36650"

#### 5F "Rj cug"

Htqo 'y g"5F "r j cug"qpy ctf u.'y g'\ 'f ko gpukq'ku'qr gpg'f 'wr 'hqt'o qxgo gpv'cpf 'ugxgtcn'p'gy 'o gej cpleu'y kn' dg'k'p'x'q'f wegf 0'

"

"

"

### 305 "Ucvgmkvg"

Gcej 'vgo 'y kmly tkg'vj g'uqhy ctg'vq'eqo o cpf 'c"URJ GTGU'ucvgmkvg'vq'o qxg'kp'qtf gt'vq'eqo r rvg'vj g" i co g'vcumu0C'URJ GTGU'ucvgmkvg'ecp'o qxg'kp'cmf ktgevku'wukpi 'ku'vy grxg'vj twvgtu0Vj g'cewcn' URJ GTGU'ucvgmkvg.'ikng'cp{ 'qyj gt'ur cegetchw'j cu'c'hwgn'luqwtg'k'p'vj ku'ecug'iks wkf 'ectdqp'f kqz kf g+'cpf 'c" r qy gt'luqwtg'k'p'vj ku'ecug'CC'dcwtg { 'r cemu0Vj gug'tguqwtg'ctg'iko kgf 'cpf 'o wuv'dg'wugf 'y kugn' 0' Vj gtghqtg.'yj g'r m{ gtu'qh\ gtq'Tqdq'vku'ctg'iko kgf 'kp'vj g'wug'qh'tgcn'hwgn'cpf 'dcwgt'kgu'd{ 'xkt wcn'iko ku' y kj kp'vj g'i co g0Vj ku'ugev'kp'f guet'kdgu'vj g'iko ku'vq'y j lej 'r m{ gtu'o wuv'cf j gtg'vq'y kugn' 'wug'tgcn' URJ GTGU'tguqwtg'gu0

### 306 \ T "Wugt 'CRK"

J gtg'ku'c'iku'qh'hwpev'kpu'cxck'cdrg'lp'vj ku' { gct'au' i co g0F gvcku'ecp'dg'hw'wpf 'lp'vj g'URCEG/URJ GTGU' CRK'hw'wpf 'lp'Vcdrg'4-0'kp'qtf gt'vq'wug'vj gug'hwpev'kpu.'wug'vj g'u{ pvcz' i co g'hwpev'kpp co g'kpr wu+0"

Hqt 'gzco r ng=i co g0f qem'kgo \*+''

Hqt 'hwpev'kpu'pqv'hw'wpf 'lp'Vcdrg'4.'wug'vj g'u{ pvcz' cr k'hwpev'kpp co g'kpr wu+.'wprguu'vj g{ 'ctg'o cvj " hwpev'kpu.'y j lej 'ecp'dg'ecmf 'y kj qw't ghgt'gpeg'vq'vj g'lpuc'peg0'

Hqt 'gzco r ng=cr k'ug'Rquk'kqp Vcti gv'hw'cv'r quVcti gv'5\_+ " " " "

I gpgt'le \ T "wugt 'CRK'N'kpm'j wr <hw'v'le0 gtqtdq'vku0 k0f wlf qeul'hw'qt'kcu' Tawugt'CRK'f h"

### Vcdrg'4-<URCEG/URJ GTGU'CRKT ghgt'gpeg"

P co g"	F guet'kr v'kqp"
dqqn'f qem'kgo *+''	Tgwtpu't'wg'h'r m{ gt'r lemu'wr "'cp'kgo 'uweegu'hw'w' "'
xqkf 'f tqr kgo *+''	F tqr u'vj g'kgo 'vj cv'vj g'ur j gtg'ku'ewt'g'p'w' 'j qn'f kpi "
lpv'i gv'p wo kgo *+''	Tgwtpu'vj g'pwo dgt'qh'v'q'v'cn'kgo u'lp'r m{ . 'y j gvj gt'vj g{ 'j cxg' dggp'r lengf 'wr ' { gv'qt'pqv0"
xqkf 'i gv'kgo Nqe'hw'cv'r qu'lp'v'kgo kF +''	Eqr kgu'vj g'hw'cv'kqp'qh'c'i kxp'kgo 'lp'v'vj g'i kxp'cttc { 0' B r ctco 'r qu'c'r q'p'v'gt'vq'cp'cttc { 'qh'uk' g'5'y j lej 'y km'dg' qxgy tkv'gp'd { 'vj g'kgo 'hw'cv'kqp0' B r ctco 'kgo kF 'Vj g'lp'v'gi gt'kf gp'v'hw'gt'qh'c'i kxp'kgo 0'
lpv'j cu'kgo 'lp'v'kgo kF +''	Vgmu'y j q'j cu'c'i kxp'kgo 0' B r ctco 'kgo kF 'Vj g'lp'v'gi gt'kf gp'v'hw'gt'qh'c'i kxp'kgo 0' 'tgwtp'2''hw'p'q'p'p'g'j cu'r lengf 'wr 'vj g'ur ge'hw'gf 'kgo . '3'hw' { qw' j cxg'r lengf 'wr 'kgo . 'qt'4'hw' { qw'qr r q'p'p'v'j cu'r lengf 'wr 'vj g' kgo 0'
lpv'i gv'kgo V{r g'lp'v'kgo kF +''	Tgwtpu'y j cv'vj g'kgo 'v{r g'ku'0' Rquik'drg'kgo 'V{r gu-<''''; ''''K/GO aVl RGA NCTI G''''; ''''K/GO aVl RGA O GF KWO ''''; ''''K/GO aVl RGA UO CNN'''' 'B r ctco 'kgo kF 'Vj g'lp'v'gi gt'kf gp'v'hw'gt'qh'c'i kxp'kgo 0' 'tgwtp'vj g'e'q'tt'gur q'p'f kpi 'kgo 'v{r g'v'q'vj g'i kxp'kf gp'v'hw'gt'0'
xqkf 'f tqr URU'kgo *+''	F tqr u'URU'kgo u"
hw'cv'i gv'Ue'qt'g'kgo *+''	Tgwtpu'r m{ gtu'ue'qt'g"

**SPACE-SPHERES**; Ua Y'A Ubi U"

hqcvi gVQj gtUeqtg*+ "	Tgwtpu"qr r qpgpvau"ueqtg"
hqcvi gHwgnT go clpki *+ "	Tgwtpu'tgo clpki 'hwgn'
kpvi gEwttgpWlo g*+ "	Tgwtpu'vj g'wlo g'lp'vj g'i co g"
xqkf 'ugpf O guuci g*wpuki pgf 'ej ct' lpr wo ui -+ "	Ugpf u'inputMsg vq'qyj gt'ucvgnkg"
wpuki pgf 'ej ct'tgeglxgO guuci g*+ "	Tgwtpu'vj g'o quvtgegpv'o guuci g'ugpv'd{ 'qyj gt'ucvgnkg"
lpvi gP wo URUJ grf *+ "	Tgwtpu'vj g'pwo dgt'qh'URUu'wknfj grf 'd{ 'yj g'ur j gtg"
dqqrni gv qpg*hwcvl qpgkphq]6_+ "	Kf'cmir u'j cxg'dggp'r rcegf . 'tgwtpu'twg'cpf 'uqt gu'c' qpg" guko cvkp'lp' qpgkphq0Qvj gty kug'tgwtpu'hcng0Ecp'qprn' dg' ecnrf 'qpeg'r gt'ugeqpf 0'
dqqrnj cuKgo DggpRlengf Wr *lpv'kgo Kf + "	Tgwtpu'twg'h'ksgo Kf 'j cu'dggp'r lengf 'wr 'cv'uoqo g'r qlpv0Tgwtpu' hcng'qyj gty kug0'

3050'hwgn'

Gcej 'r rnc {gt 'ku'cuuki pgf 'c'xkt wcn'hwgn'cmqecvqp'qh'82'ugeqpf u. 'y j lej 'ku'vj g'vqcn'luwo 'qh'hwgn'wugf 'lp' ugeqpf u'qh'lpf kxkf wcn'vj twngt 'h'k'kpi 0Qpeg'vj g'cmqecvqp'ku'equpuwo gf. 'yj g'ucvgnkg'y knipqv'dg'cdrg'vq" tgr qpf 'vq'URJ GTGU'eqpvtqn'eqo o cpf u0K'y knih'k'vj twngtu'qprn' 'vq'cxqkf 'rgcx'kpi 'yj g'k'pvtcev'vqp' \ qpg' qt'eqm'k'kpi 'y kj 'yj g'qyj gt'ucvgnkg0Cp{ 'cevkqp'vj cv'tgs wkt gu'h'k'kpi 'yj g'vj twngtu'uwej 'cu'tqcv'kpi . " ceegr'gtcv'kpi "qt"o qxkpi "equpuwo gu'hwgn0'

Vcdrg'5-<hwgn'cmqecvqp"

	2D	3D	Alliance
hwgn'cmqecvqp"]u_ "	82u'	VDC"	VDC"

3055'k'pvt/ucvgnkg'Eqo o wplecv'kpu"

Vj g'ucvgnkgu'j cxg'vj g'cdk'k'v' 'vq'eqo o wplecv'g'y kj 'gcej 'qyj gt'wukpi 'dlpct{ 'o guuci gu0Vj g'CRK'h'wpe'v'kpu' ugp'f O guuci g'cpf 'tgeglxgO guuci g'o c{ 'dg'wugf 'vq'ugpf 'f'cv'dgy ggp'vj g'ucvgnkgu0Vj g'dcpf y kf vj " cxck'cdrg'vq'vj g'ucvgnkgu'ku'cu'hqmqy u-<\*cf f kpi 'hwpe'v'kpu'hqt'eqqr gtcv'kpu+ "

Vcdrg'6-<k'pvt/ucvgnkg'eqo o wplecv'kpu'dcpf y kf vj "

	2D	3D	Alliance
O guuci g'uk' g"	Wpuki pgf 'ej ct"	VDC"	VDC"

3056'Eqf g'Uk' g"

C'URJ GTGU'ucvgnkg'ecp'h'k'c'h'ko k'gf 'co qwpv'qh'eqf g'lp'ku'o go qt { 0Gcej 'r tq'lg'ev'j cu'c'ur gek'h'e'eqf g'uk' g" cmqecv'kpu0Y j gp' { qw'eqo r krg' { qwt 'r tq'lg'ev' y kj "c"eqf g'uk' g" guko cvg. "yj g'eqo r krgt 'y kn'r tqxkf g'vj g" r gtegp'vci g'qh'vj g'eqf g'uk' g'cmqecv'kpu'vj cv' { qwt 'r tq'lg'ev'ku'wukpi 0Hqto cn'eqo r g'v'k'k'qp'u'wdo ku'k'k'pu't'gs wkt'g" vj cv' { qwt 'eqf g'uk' g'dg'322' "qt 'rguu'qh'vj g'v'q'cn'cmqecv'kpu0"

**SPACE-SPHERES**; Ua Y'A Ubi U''

**3057 "KkklcnRqukkqp"**

Vj g'Dnwg'Ur j gtg'uctw'cv'vj g'Z.[ .\ 'qh]202.'2087.'202\_0Vj g'Tgf 'Ur j gtg'uctw'cv'vj g'Z.[ .\ 'qh]202." /2087.'202\_0"

Vj g'ucvgnkg'tcf kw'ku'2083o . 'dw'ucvgnkg'r qukkqp'tgrvkg'vq'i co g'hgcwt gu'ku'f gvgt o kpgf 'd{ 'vj g'ujecvkkp" qh'vj g'egpvgt'qh'vj g'ucvgnkg0'

**Vcdrg'7<"KkklcnRqukkqp"**

	<b>2D</b>	<b>3D</b>	<b>Alliance</b>
Tgf "	"	"	"
Z"jo _"	202"	VDC"	VDC"
[ "jo _"	/2087"	VDC"	VDC"
\ jo _"	202"	VDC"	VDC"
Dnwg"	"	"	"
Z"jo _"	202"	VDC"	VDC"
[ "jo _"	2087"	VDC"	VDC"
\ jo _"	202"	VDC"	VDC"

"

"

**3058 "Rrc { gt "KF "**

Wgtu'y knkf gpvkh{ 'vj go ugrkgu'cu'or rc { gtKF "? "3o'cpf "qr r qpgpw'cu'or rc { gtKF "? "4o'hqt'cmf co gu.'y j gj gt" qt'pqv'vj g{ "ctg'vj g'tgf "URJ GTGU"qt'vj g'dnwg"qpg'tgur gevkgm{0'

**3059 "P qkug'"**

K'ku'lo r qtvcpv'vq'pqg'vj cv'cmj qwi j 'vj g'y q'eqo r gvktu'lp'c'o cvej 'y kn'cnj c{ u'dg'r gthqto kpi 'vj g'uco g" ej cmgpi g'cpf 'j cxg'kf gpv'ecn'ucvgnkgu.'vj g'y q'ucvgnkgu'o c{ 'dg'chgevgf 'd{ 'tcpf qo 'r gtwt'dcvkqpu'lp" f khtgtpv'y c{ u.'tguv'kpi 'lp'uo cm'qt'gxgp'rci g'xctk'vqpu'lp'ueqtg0Vj ku'ku'hmm{ 'kpvpgf gf "cu'r ctv'qh'vj g" ej cmgpi g'cpf 'tghgevu'wpegt'vkv'gu'lp'vj g'ucvgnkg'f { pco ke'cpf 'ugpukpi 'o qf gnu0Vj g'dgu'r gthqto kpi " uqrvkqpu'y kn'dg'vj qug'vj cv'r tqxg'vq'dg'tqdwu'vq'vj gug'xctk'vqpu'cpf 'c'y kf g'xctk'v{ 'qh'qdlgevr ctco gvgtu0'

"

"

SPACE-SPHERES; Ua Y'A Ubi U''

### 306'I co gr n{ "

kp"qtf gt"q"dg'xlevqtqwu"qxgt"vj g"qr r qukpi "vgco . "gcej "ucvgnkg"lj qwf "r rceg"vj gk"vj tgg"URU'kgo u."f qem' ucvgnkg'kgo u"q'r rceg'kp"vj gk"l qpgu."cm'y j kg'o cpci kpi "vj gk"hwgn"vj gk"vko g."cpf "vj gk"mpecvkqp"qp"vj g" i co gr n{ "ctgc0"

### 306B"Ucvgmksg'Rqukkqpkpi "U{ uvgo "

Vj gtg'ctg"5"URU'kgo u'j grf "d{ "gcej "URCEG/U'cv'vj g'uvctv'qh'cm'vj g'i co gu0Vj g"URCEG/U'vgco u'o wuw' r rceg"vj go "q"v'kcp' wcv'vj gk"l qpgau'egpvt0URU' qpg'mpecvkpi "y qtmu'qpn{ "chgt"cm'5"URU'u'j cxg'dggp" f gr nq{ gf "wukpi "vj g'xqkf "f tqr URU'+hwpevkqp0URU'ecrww'c"tcf kwu'qh'gttqt"lpxgtugn{ "r tqr qt'vkpcn'q"vj g" ctgc'qh'vj g'v'kcp' wct"URU'kgo u'cpf "f kur n{ u'vj g"l qpg'y kj "vj ku'tcf kwu'qh'gttqt0Wf qp"f tqr r kpi "{ qwt'kpcn' URU'f qw'y knitgegkxg'r qlpw'gs wcn'q"0B f'gttqt"tcf kwu+"

Vcdng'8<"Ccegrtvcipi "Tcvgu'y kj "URU'kgo u"

No SPS	1 SPS	2 SPS	3 SPS
cee"	: l, cee"	, cee"	: B3, cee"

### 30604"F qenkpi ""

F wtkpi "vj g'4F "i co g."q"v'qem'y kj "cp'kgo "c"URCEG/U'o wuw'cr r tqcej "cp'kgo ."pqv'dg"b"o qxkpi " hcvgt"vj cp"03o lu."dg'r qlkwpi "cv'vj g'kgo "y kj "c"v'qngtcepeg"qh'2047"tcf kcpu"Vj g"cp'v'ng'dgy ggp" vj g'ucvgnkg'u'kcp' "xgevqt"cpf "vj g'xgevqt"dgwy ggp"vj g'egpvt"qh'vj g'ucvgnkg"cpf "vj g'egpvt"qh'cp{ " hceg"qh'vj g'kgo "ku'y kj kp"2047"tcf kcpu+."dg'y kj kp"e"ur gekhgf "f kucpege"qh'cp'kgo "cpf "ecm'vj g" â~→Áä~´ ←ø\æ↑ÇD'hwpevkqp0"

Vcdng'9<"Kgo "Rlemw' "F kucpegu"o gvtu'htqo "egpvt"qh'kgo +"

Item Type	2D	3D	Alliance
Small	[.124 : .146]	TBA	TBA
Medium	[.138 : 160]	TBA	TBA
Large	[.151 : .173]	TBA	TBA

**SPACE-SPHERES**; Ua Y'A Ubi U''

Hki wtg'6<F qenlpi "Ucvgmkg'Kgo u\*y kj 'czgu'eqttgevgf "cpf "z. {"eqqtf kpcvgu'eqttgevgf -"

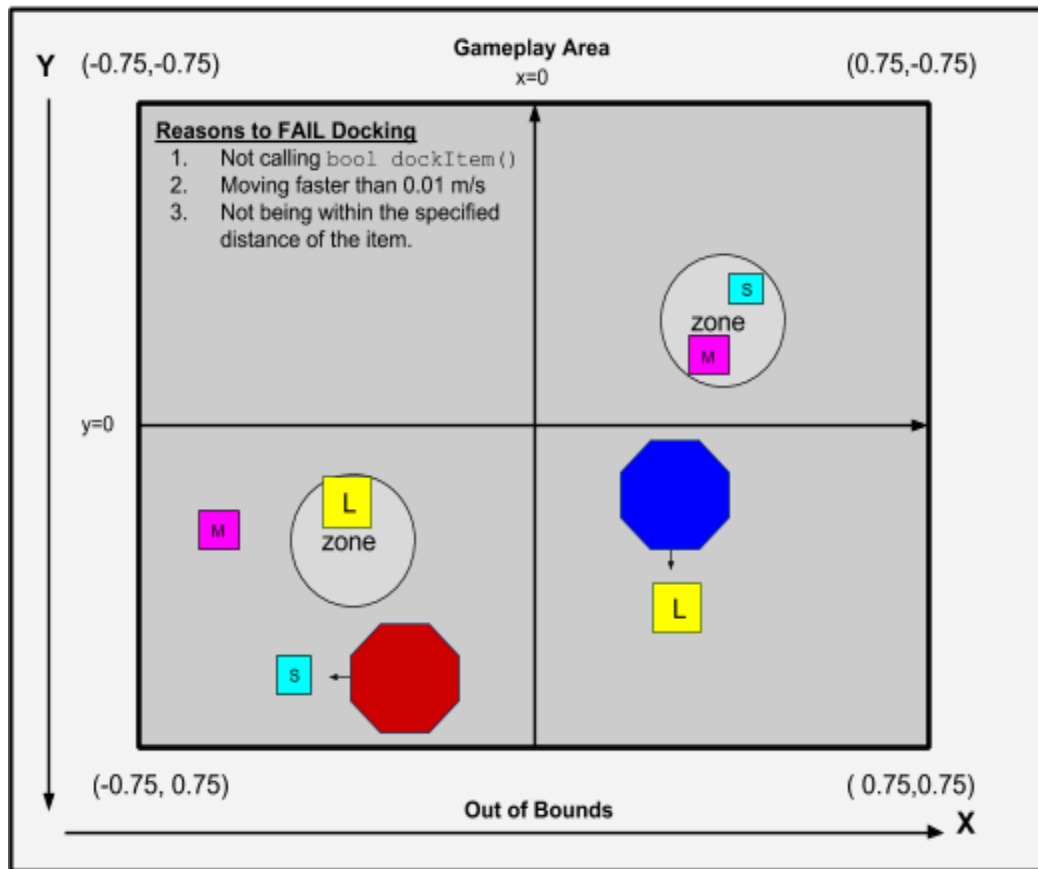


Diagram not to scale

3065 "Kgo u"

Vj gtg'ctg'ukz "Ucvgmkg'kgo u\*qh'y tgg'uk gu+uecwgtgf "ctqwpf 'y g'lpvgtcevkqp' l qpg0Ccej 'j cu'c'wpls wg" pwo gtke'kf gpwhtgt'htqo "2'v'P/3.'y j gtg'P 'ku'y g'pwo dgt'qh'kgo u0k'vj g'4F 'xgtukqp'vj gtg'ctg'ukz "vqcn' kgo u\*2/7-0"

Vcdrg': <"Kgo "K u'cpf "Nqecvkqp"

Item Number	Item Type	Location (X, Y)
0	Large	(.23, .23)
1	Large	(-.23, -.23)
2	Medium	(.36, -.36)
3	Medium	(-.36, .36)
4	Small	(-.50, .50)
5	Small	(.50, -.50)

**SPACE-SPHERES**; Ua Y'A Ubi U''

"

Vj g'ucvgnkg'kgo u'eqo g'y kj 'yj tgg'uk gu'qh'y j lej 'yj gtg'ctg'wy q'gcej 0Vj g'Uo cmi'kgo 'j cu' "uk' g'cpf "o cuu' qh'URJ GTGU0K'eqmgevff 'lp'y g' qpg.'k/i kxgu'20Br u'r gt'ugeqpf "cpf 'k/c'URCEG/U'ecttkgu'k.'k'ecp" ceegrntcv'cv: 1: "tcvg0Vj g'O gf kwo 'kgo 'j cu' "uk' g'cpf "o cuu'qh'URJ GTGU0Y j gp'lp'y g' qpg'k/i kxgu' 2087'r u'r gt'ugeqpf "cpf "c'URCEG/U'y kj 'yj g'o gf kwo 'kgo 'ecp'ceegrntcv'cv' "tcvg0Hkpcmf 'yj g'rti g'kgo " j cu' "uk' g'cpf "o cuu'qh'URJ GTGU0K'i kxgu'204'r u'r gt'ugeqpf "cpf "o cngu'c'URCEG/U'ceegrntcv'cv: B3" tcvg0"

Vcdrg"; <Uk' g'cpf "O cuu'qh'kgo u'eqo r ctgf "q"c'URJ GTGU"

	2D	3D	Alliance
Ncti g'Ucvgmk'kgo "	51 "	VDC"	VDC"
O gf kwo 'Ucvgmk'kgo '"	316 "	VDC"	VDC"
Uo cmi'Ucvgmk'kgo "	31 "	VDC"	VDC"

"

Vcdrg"32<Ceegrntcvkqp'Tcvgu'ht'URCEG/U'y kj 'f hgtgp'kgo u'

	2D	3D	Alliance
Ncti g'Ucvgmk'kgo "	: B3 "	VDC"	VDC"
O gf kwo 'Ucvgmk'kgo '"	617 "	VDC"	VDC"
Uo cmi'Ucvgmk'kgo "	: 1 "	VDC"	VDC"

"

Ecm'y g'i co g'hpvckp'lpv'j cu'kgo \*lpv'kgo akf +\q'f gvgto kpg'y j gvj gt'y g'kgo 'ku'j gnf "d{ "pqdqf { \*2+ " {qw\*3+ "qt" {qw"qr r qpgpv\*4+0'

Vj g'f kci tco "dgruy 'uj qy u'j qy 'yj g'kgo u'ctg'r mæg'f 'u{o o g'kcmf . 'cv'y g'uco g'f kucpeg'htqo 'yj g" f kci qpcif'

SPACE-SPHERES; Ua Y'A Ubi U''

Hki wtg'7<F kci qpcnU{o o gt{ '\*y kj "cz gu'eqttgevgf"cpf "z.{ 'eqqtf kpcvgu'eqttgevgf +"

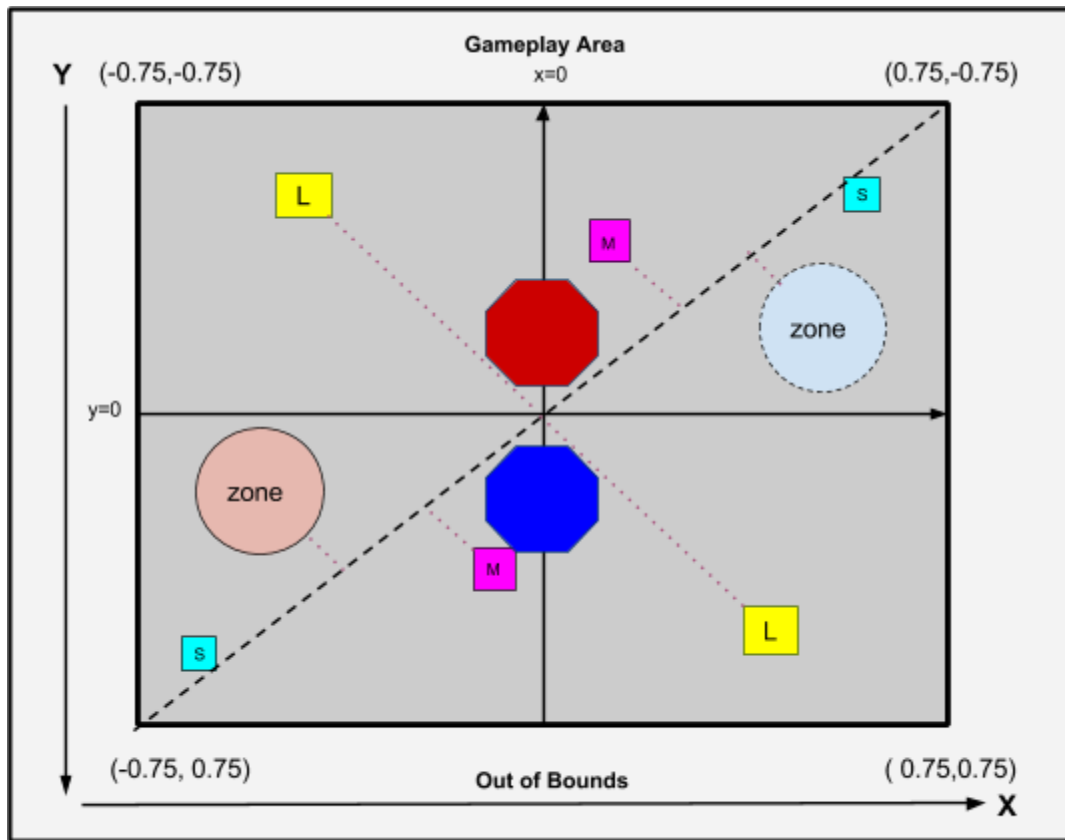


Diagram not to scale

3060'Ueqtkpi "Uwo o ct { ""

[ qwt'ueqtg'ku'rcti gn{dcugf "qp'yj g'kgo u"{qwj cxg'kp}{qwt'Cuugo dn{ \ qpg0kgo u'ctg'y qtjy f khtgpv'r qkp'v' xcmgu'f gr gpf kpi "qp'yj gk'uk' gu0"

Vj g'ueqt kpi "ecrewe'kqp'ku'cu'hqmny u<"

Vcdng'33<Rqkp'Xcmgu"

	2D	3D	Alliance
Uo cm'kgo "jr vuhge_ "	208"	VDC"	VDC"
O gf kwo "kgo "jr vuhge_ "	2087"	VDC"	VDC"
Ncti g'kgo "jr vuhge_ "	204"	VDC"	VDC"
F tqr r kpi "hpcn'URU'kgo "	08'gttqt'tcf kwi'itqo "URU+"		

3060'Gpf "qhi' co g"

Vj g'i co g'gpf u'chgt'3: 2'ugeqpf u0Y j kej gxgt'vgo 'j cu'o qtg'r qkp'u'y kpu0k'v'j g'wprkmg' "ecug'qhi'c'kg." y j qxgt'ku'emugt 'q'yj g'egpvt ktki kp'qhi'y g'r r{ kpi 'hgr "cvi co g'gpf 'y kpu0"



# 40Vqwt pco gpv''

C\ gtq'Tqdq\ku'vqwt pco gpv'eqpuku'qh'ugxgtcni'j cugu'ecngf "eqo r gvkqpu0Vj g'hqmqy kpi 'vcdng'rkua'yj g" ng{ 'f gcf rkgu'hqt 'yj g'4238'vqwt pco gpv'ugcuqp<

Vcdng'34<"Vqwt pco gpv'Mg{ 'F cygu'

Date (2016)	Event
Sept 10 (Sat)	Kick-off webcast
Sept 30 (Fri)	2D Simulation Competition Deadline (end of practice)
Oct 28 (Fri)	3D Simulation Competition Deadline
Nov 5 (Sat)	Alliance Formation Event
Dec 2 (Fri)	Semifinal Simulation Competition Deadline
Dec 18 (Sun)	ISS Code Due
Jan 2017- Date TBD	ISS Final Competition

"

Vj g'tcpnki u'lp'gcej "eqo r gvkq"ctg'f gvgto kpgf "d{ 'c'Ngcf gtdqctf . 'f guetkdgf "dngy 0Vj g'4F "Uko wcvkqp" Eqo r gvkq'ku'pqv'cp'grko kpcvqp'tqwpf =cm quv'gxgt{ qpg'y j q'uwdo ku'eqf g'y j lej "cej kxgu'c'pqp| gtq" ueqtg'ci ckpu'c'odrcpnö'r r{ gt'yr r{ gt'y kj 'pq'eqf g-'v'yj g'4F "Uko wcvkqp"Eqo r gvkq'cf xcpegu'v'yj g'5F " Eqo r gvkq0

## 40B"Vj g'Ngcf gtdqctf "

### 40B"Kpvtqf wcvkqp''

Vj g\ gtq'Tqdq\ku'Ngcf gtdqctf 'j cu'cf cr vgf "qxtg'yj g' gctu.'cpf 'ku'pqy 'dcugf "qp'yj g'Y j qng'J kvqt { " Tcvkpi '\*Y J T'+u{ugco 0Vj g'Y J T'crr tqcej 'tcenu'tcvkpi u'yj tqwi j qw'gcej 'r j cug'qh'yj g'eqo r gvkq'kp" qtf gt'v'kcpnr r{ gtu'qp'yj g'ngcf gtdqctf 0Tcvkpi 'ku'ecre'wcvkf "dcugf "qp'yj g'r tqdcdkrf "qh'f qw'v'gco " dgcvki "cpqj gt'v'gco 'f wtkpi 'c'o cvej '\*r tqdcdkrf "qh'y kpu'cpf 'mqugu+0Ueqtgu'itqo 'kpf kxf wri'o cvej gu'ctg" pqv'hevqtf 'kp'v'yj g'ecre'wcvk0Ugg'yj g'öEcre'wcvkpi "Tcvkpi uö'ugev'kqp'dngy 'hqt 'f gvcku0

Vj g'Ngcf gtdqctf 'ecre'wcvk'v'cvkpi u'f ckf 'itqo 'yj g'dgi kppki 'qh'c'eqo r gvkq'wpv'v'yj g'uwdo ku'kqp" f gcf rkg0Cm'ö cvej gu'f wtkpi 'yj g'eqo r gvkq'r gtlqf 'eqwp'v'qy ctf 'yj g'tcvkpi 'lp'yj g'eqo r gvkq'0Cv'yj g' gpf "qh'gcej "eqo r gvkq'r j cug.'yj g'hkcn'lucpf kpi u'qp'yj g'Ngcf gtdqctf 'y knif gvgto kpg'y j lej 'v'gco u' cf xcpeg'v'yj g'pgz'v'r j cug0

### 40B4'Rrc{ kpi 'O cvej gu''

Gcej 'f c{ . 'cv'43<7; <7; "WE. '\*zegr v'qp'eqo r gvkq'f gcf rkgu'yj j gtg'r quv'f "ko gu'cr r n{ +'{ qw'ö quv' tgegpv'f 'uwdo kv'f 'eqf g'ku'eqm'gevgf "d{ 'cp'cwqo cv'f 'u{ugco 'cpf 'r r{ g'f 'ci ckpu'qj gt'v'gco u'uwdo ku'kqp. " cu'f guetkdgf "lp'yj g'ugev'kqp'v'v'f öUc'p'f ctf 'r r{ ö'dngy 0Vj g'öUc'p'f ctf 'Rrc{ ö'e{ erg'ku'tgr gcvgf 'c'v'v'ri'qh' h'xg'\*7+ko gu'wv'kpi 'yj g'v'gco 'r mego gpv'itqo 'yj g'r t'g'x'k'w'u'e{ erg'cu'yj g'uwct'v'kpi 'r q'kp'v'itqo 'yj g'pgz'v'e{ erg0



SPACE-SPHERES; Ua Y'A Ubi U"

T guwmu'ctg'r quvgf "qp"vj g'y gduks'chgt'cmh'xg'\*7+'e{ engu'j cxg'dggp"eqo r rvgvf 0Y j kg'vj g'f ckn' " eqo r g'xk'qp'ku'qpi q'kpi "vj g'rgcf gtdqctf 'y kn'pq'vdg'xkukdrg'cpf "erlenkpi "qp"vj g'Ngcf gtdqctf 'y kn'it'gwtp"vj g" o guuci g<δT guwmu'y kn'ldg'r quvgf "qpeg"vj g'f ckn' "rgcf gtdqctf 'twp'ku'eqo r rvgvō00 wnk'rg'ōUc'p'f'ctf 'r'nc{ō" e{ engu'ctg'eqo r rvgvf "hqt"vj g'hqmy kpi 't'gcuqpu<3+'Vq'ugwrg'qt "eqpxgti g't guwmu'f ckn' 0\*Vj ku'gp'uw'gu'c" o qtg'ceew'cv'g't'gh'ev'k'p'q'h't'cp'm'hqt'v'gco u'gp'vgt'kpi "c"eqo r g'xk'qp'rgcf gtdqctf 'hqt"vj g'h'ktu'v'ko g0'4+'Vq" r tq'x'kf'g'o qtg'o cvej "f'c'v'hqt"v'gco u'c'v'vj g'v'qr "cpf "dq'wqo "qh"vj g'rgcf gtdqctf "uk'peg"vj g'ug'v'gco u'r'nc{ "hgy'gt" o cvej gu'qx'g't'cmf'

4085"Uc'p'f'ctf 'r'nc{ "

"Cu'c'f'gh'c'w'n'q'w'y kn'it'nc{ "vj g'; "v'gco u'cd'qx'g'q'w'c'p'f' "vj g'; "v'gco u'd'gm'y "q'w'0'k'i'v'j g't'g'ct'g'rg'u'v'j c'p"; " v'gco u'cd'qx'g'q'w'q'w'y kn'it'nc{ "cm'v'gco u'cd'qx'g'q'w'r'm'u'v'j g'; "d'gm'y "q'w'0'k'i'v'j g't'g'ct'g'rg'u'v'j c'p"; "v'gco u' d'gm'y "q'w'q'w'y kn'it'nc{ "cm'v'j g'v'gco u'd'gm'y "q'w'c'p'f' "vj g'; "v'gco u'cd'qx'g'q'w'0'v'gco u'ct'g't'c'p'f'q'o n'f " cu'ki p'g'f "cu'D'm'g'qt'T'g'f "URJ GT'G'f'w'l'kpi "g'cej "o cvej 0'

4086"K'p'k'c'n'w'do ku'k'p't'w'rg"

"Y j gp"q'w'v'gco "h'ktu'v'w'do ku'eq'f'g'v'q'vj g'eqo r g'xk'qp"q'w'y kn'it'nc{ "o cvej gu'ci c'k'p'u'v'j g'd'q'wqo "s'w'c't'v'g't" q'h'vj g'v'gco u'c'it'g'c'f{ "qp"vj g'rgcf gtdqctf 0'Q'p'vj g'h'ktu'v'c'f{ "y k'j "u'w'do ku'k'p'u. "vj q'ug'v'gco u'y kn'it'nc{ "cu'r'gt" o'Uc'p'f'ctf "R'nc{ō0'

4087"N'c'u'v'f'c{ "q'h'vj g'eqo r g'xk'qp"

"Q'p'vj g'nc'u'v'f'c{ "q'h'vj g'eqo r g'xk'qp. "vj g'rgcf gtdqctf "y kn'ldg't'w'p'o wnk'rg'v'ko gu'v'q'eq'p'x'g'ti g'l'w'c'd'k'k'g'v'j g" t'g'u'w'u'v'q'ec'rew'c'v'g'gp'w'f{ "r'q'u'k'k'p'q'h'v'gco u'w'do k'k'p'i "hqt"vj g'h'ktu'v'ko g'c'p'f'v'q'cu'g'u'u'h'k'p'c'n'r'nc'g'o gp'v'q'h' cm'v'gco u'0'

4088"E'c'rew'c'v'k'p'i "T'c'v'k'p'i u"

C'v'gco ō'u'c'p'f'k'p'i "k'p'c'eqo r g'xk'qp'ku'f'g'v'g'to k'p'g'f'd{ "c'x'c'w'g'ec'nc'g'f't'c'v'k'p'i 0'Vj g'Ngcf gtdqctf "t'c'c'nu'cm' " o cvej gu'c'v'gco "j cu'r'nc{ g'f "ci c'k'p'u'v'q'v'j g't'r'nc{ g'tu'k'p'vj g'eq'w't'ug'q'h'vj g'eqo r g'xk'qp'c'p'f'et'g'c'v'g'u'c't'c'v'k'p'i " dc'ug'f'qp"vj g'q'w'eqo gu'0'

[ q'w't'c'v'k'p'i "ku'v'j g'h'c'v'q't'T'2"l'p'vj g'g's'w'c'v'k'p'hqt"vj g'r't'q'd'c'd'k'k'v'q'h"q'w'v'gco "d'g'c'v'k'p'i "c'p'q'v'j g't'r'c'f'g't'q'h" t'c'v'k'p'i "T'3"l'p'c'v'k'p'i ng'o cvej 0'

Probability(W) = e<sup>R0</sup> / (e<sup>R0</sup> + e<sup>R1</sup>)"

Vj g'x'c't'k'd'rg'T'2'ku'eqo r w'g'f "w'k'p'i "c'p'c'ni q't'k'j o "dc'ug'f'qp'D'c{ g'uk'p'k'p'ht'g'p'eg'0'Vj g'r't'q'd'c'd'k'k'v'q'h'c't'c'p'm't" i k'x'g'p'c'ug't'k'g'u'q'h'i co g'q'w'eqo gu'I "ku'v'j gp<"

P(r|G) = P(G|r)P(r) / P(G)"

ku'v'j g'r't'k'q't'f'k'w't'k'd'w'k'p'q'h't'c'v'k'p'i u. "y j k'ej "ku'c'cu'wo g'f "v'q'x'c't{ "k'p'c't'c'p'f'q'o "y c'm'it'q'eg'u'v'y k'j "c'w'c'p'f'ctf" f'g'x'k'c'v'k'p'q'x'g't'g'cej "f'c{ "q'h'vj g'eqo r g'xk'qp'q'h'208. "ej q'ug'p'ch'gt'v'g'u'v'k'p'i "hqt'w'c'd'k'k'v'q'h'vj g'd'q'c't'f'0'Vj ku' c'm'y u'c'm'it'g'x'k'q'w'u't'c'v'k'p'i u'v'q'ej c'p'i g. "cu'ko r r'k'g'f "d{ "v'j g'p'c'o g'Y j q'rg'J ku'v'q't{ "T'c'v'k'p'i 0'k'p'q't'k'p'i "R\*I + " d'g'c'w'g'k'ku'c'p'q'to c'k'k'p'i "eq'p'u'c'p'v'y k'j "p'q'g'h'g'v'q'h'vj g'h'k'p'c'n't'c'v'k'p'i "t. "c'p'f'k'p'eq't'r'q't'c'v'k'p'i "v'j g'w'c'p'f'ctf" f'g'x'k'c'v'k'p'q'h't'c'v'k'p'i u. "j c'x'k'p'i "g'cej "f'c{ "q'h'vj g'eqo r g'xk'qp't'g'r't'g'ug'p'v'k'p'i "m"

$$\prod P(r|G) = P(g_k|r_k)P(r_k|r_{k-1})$$

Vj g'hpcri\gto 'R\*t'2+'ku'ugv'vq'20"

Vj g'eni qtkj o 'wugu'pgy vpa'u'o g'v qf 'vq'o czko k g'v'j ku'r tqdcdkk\ 'cu'c'hwpevkp'qh'f' qwt'tcvkpi 0Vj g'tcvkpi " cv'v' ku'o czko wo 'ku'f' qwt'pgy 'tcvkpi 0'

400"Uwo o ct { ""

P qv'cmly kpu'ctg'gs wcn0Y kpu'cpf 'mqugu'ctg'xcnmgf 'd { 'v'j gk'tgrv'kqp'vq'v'j g'r tqlgv'gf 'y kp'r tqdcdkk\ 0f' qwt' " tcvkpi 'eqttgur qpf u'vq'c'72' 'y kp'r tqdcdkk\ 'o gcpkpi " { qwt'ctg'o qtg'v'j cp" 72'hkngn' 'vq'y kp'ci ckpu'v'gco u' y kj 'm'j gt 'tcvkpi u'v'j cp" { qwtu.'dw'p'qv'ci ckpu'v'gco u'y kj 'j ki j gt 'ueqtgu0Wpgzr gev'gf 'o cvej 't'guwmu.'gk'j gt " hcxqtcdr'g'qt'wphcxqtcdr'g.'y kn'hgcxg'v'j g'o quv'p'qv'legcdr'g'ko r ceu'qp" { qwt'tcvkpi 0'

Cmj qwi j 'v'j ku'r tqegu'u'ku'dcugf 'qp'r tqdcdkk\ . 'k'ku'y j qm'f 't'grkcdrg0Vj g'tcpn'leqo r wcvkqp'eni qtkj o " eqttgeu'g'gttqtu'kp'tcpn'lj knqt { 'v'j tqwi j qw'v'j g'eqo r gv'k'k'p.'cpf "qr vko k cvkqp'cpf 'uxcdk'k' cvkqp'uchgi wctf u' j cxg'dggp'cf f gf 'vq'ecr'w'v'g'tcpn'ly kj 'gz'v'tgo g'r tge'kuk'p0Cnuq.'v'j g'h'gcf gtdqctf 'ku'f' guki pgf 'vq'cm'gy 'f'cvc' " vq'r tq'ci cvg'v'j tqwi j qw'v'j g'u'f' u'vgo 0K'v'y q'r'nc { gtu'f' qp'v'tw'p'ci ckpu'v'gcej 'qv'j gt 'd'gecv'w'g'v'j gk'tcpn' f'k'h'gt'gpeg'ku'o qtg'v'j cp'32'um'v.'qx'gt'nc r kpi 'o cvej gu'w'f' cvg'd'q'v'j 'v'gco u'v'tcvkpi u0Gxgt { 'v'gco u'v'tcvkpi 'ku' tgr'v'k'g'v'q'cm'lv'j gt 'tcvkpi u0'

Vq'uwo o ct k' g'v'j gtg'ctg'ugxgt'cn'h'cev'qtu'v'j cv'ch'g'ev'c'v'gco u'v'tcvkpi <d0 cvej 'Qweqo gu'<'C'v'gco 'v'j cv' eqpuk'v'g'p'v'v'f 'y kpu'o cvej gu'y kn'w'w'cm'f 'j cxg'c'j ki j gt 'tcvkpi 0'

dQr r qpgp'v'tcpn'Y kppkpi 'ci ckpu'v'c'j ki j gt 'tcpn'gf 'v'gco 'y kn'w'w'cm'f 'ko r tqxg'c'v'gco u'v'tcvkpi 0'

dQv'j gt 'O cvej 'Qweqo gu'Vj g'N'gcf gtdqctf 'c'eng'u'lv'q'v'bee'q'w'p'v'cm'b cvej gu'r'nc { gf 'd { 'cm'lv'gco u0Gxgp'k'h'y q' " v'gco u'f' q'p'qv'j cxg'c'f' k'g'ev'g'p'eq'w'p'v'gt.'v'j gk't'o cvej 'qweqo gu'y kn'f' cxg'c'p'g'h'g'ev'cu'y'j g'f 'h'ngt'v'j tqwi j 'v'j kf' " r ct'v'gu0'

Vj g'v'gco 'y kj 'v'j g'j ki j gu'v'tcvkpi 'y kn'd'g'tcpn'3'qp'v'j g'h'gcf gtdqctf 0Vj g'd'gu'v'y c { 'vq'uxcdk'k' g'cpf 'gxgp' " ko r tqxg'f' { qwt'tcpn'ku'y'j g'o quv'v'qi k'cn'ly c { <h'ng'gr 'y qtn'kpi 'cv'f' { qwt'eni qtkj o u0Vj gtg'ctg'p'q'uw'gh'k'g' " c'ng'p'cv'k'x'gu0Cnuq.'f' qp'v't'g'v'h'g'ct'q'h'c'dcf 'o cvej 't'v'k'p'kpi " { qwt'v'gco u'v't'qur gev'u'ng'gr " { qw'h'qo 'u'wdo k'v'kpi " g'ctn'f' 0Gxgp'v'j qwi j 'gxgt { 'u'wdo k'v'k'p'ku'h'cev'qt'gf 'kp'v'f' { qwt'o cvej 'j knqt { . 't'guwmu'q'h'r'cu'v'eqo r gv'k'k'p'u' f'go qp'v'ct'g'v'j cv'v'gco u'v'j cv'o cng'o cp { 'u'wdo k'v'k'p'u'v'g'p'f'v'q'r' g'ht'qto 'd'g'w'gt0'

H'p'cm'f . 'k'ku'ko r qt'v'p'v'v'q'p'q'v'v'j cv'ch'g'gt'gxgt { 'eqo r gv'k'k'p'r'j cug.'\*4F . 5F . 'C'nic'peg'r'j cug+'cm'ltcpn'kpi " f'cvc'ku't'g'ht'g'uj gf 'cpf 'v'gco u'v'ct'v'ht'qo 'u'et'cvej 0'

### 404'4F 'Rt'cev'leg'Uko w'cv'k'p'Eqo r gv'k'k'p'"

Cm'lv'gco u'v'j cv'eqo r ng'v'c'x'cn'f' 't'gi kn't'cv'k'p'ct'g'g'ri k'ld'ng'v'q'r' ct'v'k'k' cv'g'lp'v'j g'4F 'r' t'cev'leg'uko w'cv'k'p' " eqo r gv'k'k'p0'

P'q'v'g'<U'g'x'gt'cn'k'p'v'g't'p'cv'k'p'cn'v'gco u'ht'qo 'p'q'p'RU'p'cv'k'p'u'o c { 'r' ct'v'k'k' cv'g'lp'v'j g'4F 'cpf' 5F 'r'j cugu'q'h'v'j g' " v'q'w't'p'co gp'v.'j qy gxgt.'v'j g'f 'y kn'p'q'v'eq'p'v'k'p'w'g'lp'v'q'v'j g'c'nic'peg'r'j cug0Vj g'ug'v'gco u'y kn'r' ct'v'k'k' cv'g'd { " k'p'x'k'cv'k'p'q'p'n'f' 0'

### 405'5F "Uko wævqp'Eqo r gvklqp"

Cm'WUC."T wuukp."cpf "C wutcrkp"vgo u'y cv'eqo r rvg'c"xcrkf "tgi kmtcvkqp"cpf "uwo k'eqf g'y cv'cej kxgu'c" pqp| gtq'æqtg'y j gp'eqo r gv'f "ci ckpuv'c'õdrcpnir r { gtõ"\*c'r r { gt'y kj "pq'eqf g+d{ 'y g'4F 'r tceveg" eqo r gvklqp'f gcf rkp'g'ctg'gri kdr'q'r ctv'ekr cvg'lp'y g'5F "uko wævqp'eqo r gvklqp0J qy gxgt."qpn' 'y g'47" j ki j guv'æqt'kpi "vgo u'itqo "gcej "GUC"o go dgt'ucv'g'y kn'eqp'v'p'w'g'lp'v'q'y g'5F 'r j cug0'

Y j gp'y g'5F "eqo r gvklqp"u'ct'v'y g'i co g'y kn'dg'w'r f cv'f 'y kj "pgy "ej cm'pi gu'cpf 'y g'eqttgur qpf kpi " VDC"xcm'gu'y kn'dg'c'ppqw'pegf 0'

### 406'Cmkpeg'Hqto cvkqp'Gxgpv'

Vj g'qr "t'cpngf ": 6"vgo u'qp'y g'rgcf gtdqctf "cv'y g'gp' "qh'5F "uko wævqp'r r { 'y kn'hqto "4: "cmkpegu'qh' y tgg'\*5+"vgo u'gcej 0'Vj g'4: "cmkpegu'y kn'y qtn'eqqr gtcv'xgn' "v'eqo r rvg'y g'ugo k'kpcn'cpf . 'k'hpq'v' g'ko kpcv'f . 'y g'hkpcn0'vgo u't'cpngf "dgn'y "t'cpn: 6'y kn'dg'lp'xkgf "v'r ctv'ekr cvg'lp'y g'Xktwcn'Hkpcn0'Ugg" Uge'v'qp'40 'hqt'f gv'knu'cdqw'y g'Xktwcn'Hkpcn0'

Vj g't'cpn'kpi "qh'y g'vgo u'y kn'dg'f gv'gto k'p'gf "d{ 'y g't'cpn'kpi u'cv'y g'equg'qh'y g'5F "rgcf gtdqctf 0'

Ch'gt'y g'5F "rgcf gtdqctf "t'cpn'kpi u'ctg'c'ppqw'pegf ."cf x'c'p'kpi "vgo u'y kn'j cv'g'y tgg'f c{ u'v'eqp'v'ce'v'gcej " q'y gt'v'f k'ue'w'u'y g'k' "cmkpeg'r t'ghgt'g'pegu0'CP{ "vgo u'y cv'f q'p'qv'y kuj "v'eqp'v'p'w'g'lp'y g'V'qwt'pco gpv'y kn' j cv'g'y g'qr r qt'w'p'k'v' "v'egf g'y g'k' r qu'k'qp'v'y g'p'gz'v't'cpngf "vgo 0'

Vj g'Cmkpeg'Hqto cvkqp'Gxgpv'y kn'v'cng'r r'æg'qp'P q'xgo dgt'7'y 0'Vj g'cmkpeg'hqto cvkqp'gxgpv'qt'õf t'ch' f c{ õ'ku'cp'q'p'k'p'g'gxgpv'f w'k'pi 'y j lej "vgo u'y kn'hq'ny 'y g'cmkpeg'ug'ge'v'qp'r t'q'egu'f guet'k'dgf "dgn'y "v' k'p'x'kg'q'y gt'vgo u'lp'v'cmkpeg'cpf k't'c'ee'gr v'y g'k' r r'æg'y kj k'p'cp'cmkpeg0'CV'hcuv'q'p'g't'gr t'gug'p'v'k'x'g" It'qo "gcej "vgo "o wu'v'r ctv'ekr cvg'lp'y g'q'p'k'p'g'õf t'ch'f c{ õ'gxgpv'hqt'y g'vgo "v'eqp'v'p'w'g'lp'y g'cmkpeg" r j cug0'CF f k'k'q'p'cn'f gv'knu'cdqw'y g'q'p'k'p'g'õf t'ch'f c{ õ'cpf 'j qy "v'r ctv'ekr cvg'y kn'dg'r t'q'x'k'f g'f "k'p'cf x'c'peg" qh'y g'gxgpv0'

F'wg'v'y g'r'cti g'p'wo dgt'qh'vgo u'lp'x'q'x'kgf ."y g'f t'ch'y kn'dg'ur r'k'lp'v'v'y q'r ct'v'cu'uj qy p'lp'y g'dgn'y " h'ki wt'g0'CM'vgo u't'cpngf 'y kj "q'f f "p'wo dgtu'y kn'r ctv'ekr cvg'lp'F t'ch'r ctv'3'cpf "cm'vgo u't'cpngf 'y kj "gxgp" p'wo dgtu'y kn'r ctv'ekr cvg'lp'F t'ch'r ctv'40'Gcej 'f t'ch'y kn'k'p'cn'f g'64'vgo u0'

**SPACE-SPHERES**; Ua Y'A Ubi U''

**Hki wtg'8<F kxkukqp"qh"Vgco u'hqt"vj g'F tchm'**

Draft part 1 teams with odd numbered rankings			Draft part 2 teams with even numbered rankings		
1	29	57	2	30	58
3	31	59	4	32	60
5	33	61	6	34	62
7	35	63	8	36	64
9	37	65	10	38	66
11	39	67	12	40	68
13	41	69	14	42	70
15	43	71	16	44	72
17	45	73	18	46	74
19	47	75	20	48	76
21	49	77	22	50	78
23	51	79	24	52	80
25	53	81	26	54	82
27	55	83	28	56	84

*Note: The times of the draft parts are To Be Announced*

Vj g'cmkpeg"ugrgevkqp'r tqeguuy knlhqmy "c'ugtr gpvkg'r cvgtp"knwutcvgf "kp"vj g'Hki wtg'dgmy <-  
 ðVj g'j ki j guv'cpngf "vgco "ugrgeu"vj gk'r ctvpgt'htqo "cp{ "gzegr v'vj g"vqr "8"tcpngf "vgco u'kp"vj gk'f tchm'  
 ðVj g'pgzv'j ki j guv'cpngf "vgco "ugrgeu"vj gk'r ctvpgt'htqo "cp{ "qh"vj g'tgo cklpi "vgco u'gzegr v'vj g"vqr "8"  
 tcpngf "vgco u'kp"vj gk'f tchm'

ð36'r cktu'ctg'etgcvgf "kp"vj ku'o cpgt"

ðC"dtgcm'cngu'r mreg'hqt"vj g'pgy 'r cktu'v'f kueuu'vj gk'ugrgevkqp'hqt"vj g'5tf "cmkpeg"vgco "

ðVj g'ðmy guv'cpngf 'r ckt"vj gp"ugrgeu"vj gk'5tf "vgco 'htqo "vj g'tgo cklpi "36"vgco u"

ðVj g'ð4pf "hgy guv'cpnir ckt'o cng"vj g'pgzv'ugrgevkqp"

ðEqp'vkwg'wp'kicm'36"cmkpegu'ctg'hqto gf 0

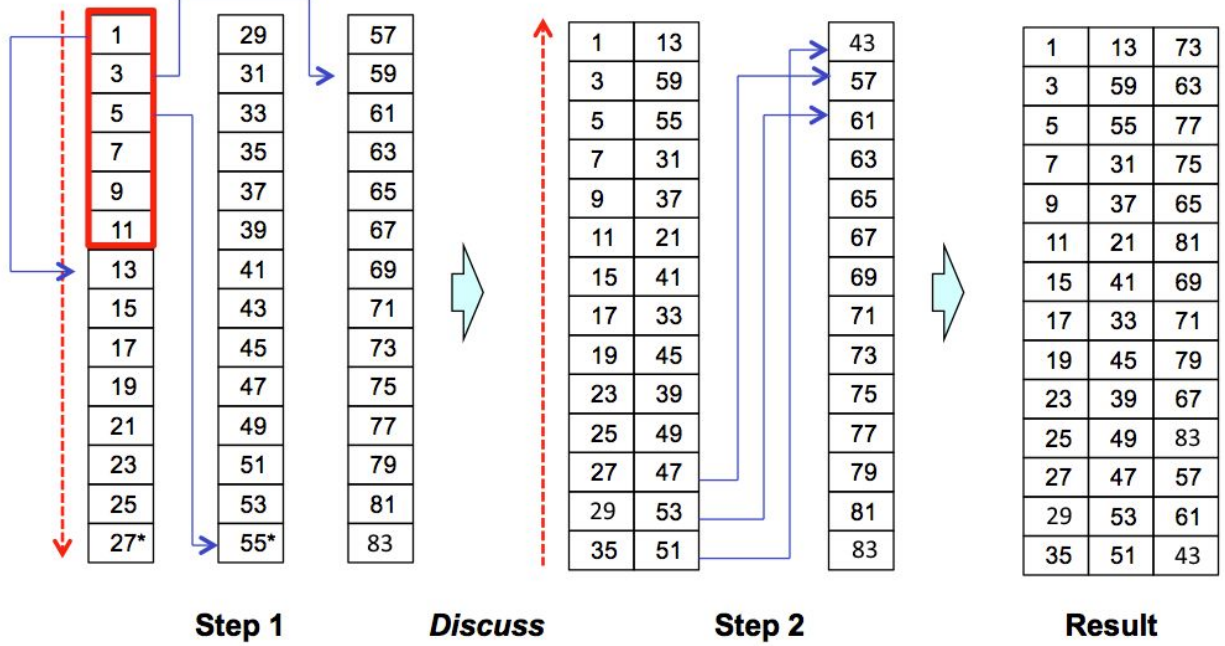
ðVj ku'r tqegu'ku'f wr ðecvfg "kp"dqy 'f tch'gxgpw'v'gpf 'y kj 'c"vqcn'qh'4: "cmkpegu"

*Rule: No more than 2 of the teams in an alliance can be from the same continent.*

"  
 "  
 "  
 "  
 "  
 "  
 "

SPACE-SPHERES; Ua Y'A Ubi U"

Hki wtg'9<Cnkcpeg'Etgcvkqp'Rtqeguuf go qputcvgf 'hqt'vgco u'y kj 'qf f 'pwo dgt'tcpnkpi u"



\*; Vj g'gzco r ng'uj qy p'cdqyg'ku'cr r tqzko cvg0"

40'Y kf 'Ectf u'Gzr nckpgf /'T gugt xgf "

\*Vj ku'ugevkqp'ku'P IC'hqt'vj g\ gtq'Tqdqkcu'J ki j 'Uej qqr'Vqwt pco gpv'4238+

48'Ugo hkpnc'Uko wrvkqp'Eqo r gvkkqp"

Vj g'4: "cnkcpegu'etgcvgf 'f wtłpi 'yj g'cnkcpeg'Hqto cvkqp'Gxgpv'y knr ct vkr cvg'kp'vj g'ugo hkpnc'uko wrvkqp' eqo r gvkkqp0"

Y j gp'vj g'ugo hkpnc'eqo r gvkkqp'uactv. 'yj g'i co g'y knidg'wr f cvgf 'y kj 'pgy 'ej cmgpi gu'cpf 'yj g' eqttgur qpf kpi "VDC'xcnngu'y knidg'cppqwpgef 0Vj gug'pgy 'ej cmgpi gu'ct g'kpvgpf gf "v'dg'uwduxcp'kcn' gpqwi j "v'tgs vktg'r ct vkr cvkqp'qh'cm'cnkcpeg'vgco u'kp'r tgr ctłpi 'eqo r gvkkqp'uwdo kuukqpu0"

49'KU'Hkpnc'Eqo r gvkkqp"

Vj g'qr "36'cnkcpegu'qp'vj g'ngcf gtdqctf "cv'vj g'gpf "qh'ugo hkpnc'r n{ 'y knicf xcpeg'v'vj g'KU'Hkpncu' Eqo r gvkkqp0Cnkcpegu'tcpngf 'dngy 'tcpni'36'y knidg'kp'xkgf "v'r ct vkr cvg'kp'vj g'Xk wcn'Hkpncu'Ugg" Ugevkqp'40 'hqt'f gvcku'cdqw'vj g'Xk wcn'Hkpncu'0"

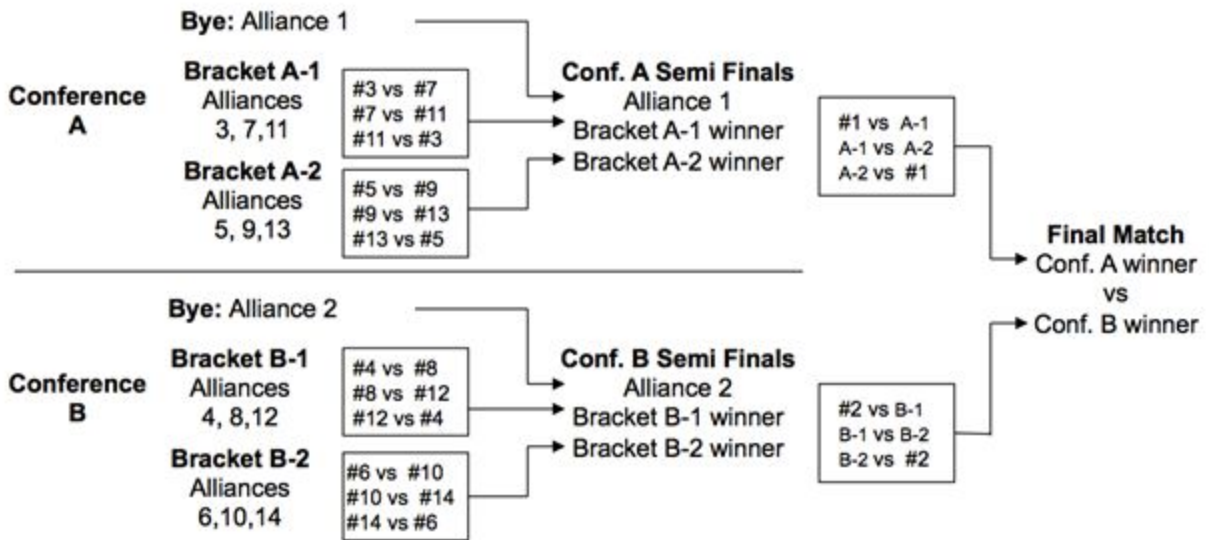
Vj g'KU'Hkpncu'y kn'cng'r nceg'cdqctf 'vj g'kpvgtpcvkqpnc'Ur ceg'Ucvkqp'y kj 'rxg'v'cpuo kuukqp'v'0 K'V' Vgco u'y knidg'kp'xkgf "v'rxg'dtqcf ecuv'gxgpw'cv'0 K'WU+ 'cp'GUC'ngcvkqp'GW+ 'cpf "cv'Wp'kxgtuk' "qh' U{f pgf '\*Cwutcrk-0"



SPACE-SPHERES'; Ua Y'A Ubi U''

dg'wugf "vq'dtgcml'j g'vg'Vj g'y kppki "cnkpege'ftqo "gcej "eqphgtgpeg'y knr r { "c'ukpi ng'o cvej "vq'f gvgto kpg" vj g' g'q'Tqdqv'keu'KUUEj co r kq0Vj g'mukpi "cnkpege'y kn'dg'cy ctf gf "4pf'r ræg0'

Hki wtg"; "<KUUEqo r gvkkp'Dtcengv"



Definition: Successful Match

- Both satellites move correctly to initial positions
- Both satellites have normal motion throughout the test
- Both satellites return a valid score
- Neither satellite expends its CO<sub>2</sub> tank during a test run

Definition: Simulated Match

In advance of the competition, the ZR Team will run a simulated round robin competition between all participating teams. The results from matches in this competition will be used in place of ISS tests if necessary (see below.) The results of a simulated match will only be announced if they are used in the live competition.

400'Ueqtkpi 'O cvej gu"

Ueqtgu'lp"vj g'ueqtkpi 'o cvej gu'y kn'dg'f gvgto kpgf "ceeqtf kpi "vq'vj gug'twgu-<

Case 1: 'Uweeguuhwi'O cvej . "Dqj "Ucvgnksgu'T gwt p" Wpks wg"Ueqtg" \*g' 0352. "373+"

ÉVj g'ueqtkpi y kn'dg'tgeqtf gf "cu'vj g'q'hekn'ueqtk' hqt 'vj g'o cvej 0'

Case 2: "Gkj gt "Ucvgnksg' T gwt pu'cp" kpxcrkf "Ueqtg" \*g' 0352. "477+"

ÉK'vj g' hkuvt'wp'qh'c'o cvej "ku'pqv'uweeguuhwn 'vj g'o cvej 'y kn'dg'tgtwp. "vko g'r gto kvkpi 0'

ÉK'vj g'ugeqpf 'twp'qh'c'o cvej "ku'pqv'uweeguuhwn 'vj g'tguwmu'ftqo "c'uko wævgf 'o cvej 'y kn'dg'wugf 0'



### 40 "Xkt wcnHkpcnu'Uko wrvklqp'Ego r gvklqp"

Cm'vgco u'r ctvlekr cvkpi 'kp'yj g'5F 'eqo r gvklqp'yj cvf q'pqv'cf xcpeg'vq'yj g'Ugo kHkpcn'eqo r gvklqp '\*Cnkpeg' Rj cug+'cpf 'cm'vgco u'r ctvlekr cvkpi 'kp'yj g'Ugo kHkpcn'Eqo r gvklqp'yj cvf q'pqv'cf xcpeg'vq' KUUHkpcnu'y km'dg' kpxkxgf 'vq'r ctvlekr cvg'kp'yj g'Xkt wcnHkpcnu'0

Vj g'Xkt wcnHkpcnu'i co g'y km'dg'kf gpv'ecni'vq'yj g'Ugo kHkpcn'eqo r gvklqp '\*Cnkpeg' Rj cug+'i co g'0Vgco u' r ctvlekr cvkpi 'kp'yj g'Xkt wcnHkpcnu'y kni'wdo k'vq'c'Xkt wcnHkpcnu'Ngcf gtdqctf 0'

Vgco u'o c { 'ej qqug'vq'r ctvlekr cvg'kp'yj g'Xkt wcnHkpcnu'cu'lpf kxkf wcn'vgco u'qt'cu'cmkpegu'0Vgco u'yj cvf kf " pqv'r ctvlekr cvg'kp'yj g'qtki kpcn'cnkpeg'hqto cvkqp'g'xgpv'ctg'y g'eqo g'vq'etgcvg'cnkpegu.'khi'f gukt gf 0' J qy g'xgt.'qpeg'c'vgco knkpeg'wdo ku'eqf g'vq'yj g'Xkt wcnHkpcnu'Ngcf gtdqctf 'vj g'vgco knkpeg' eqo r quklqp'ecppqv'dg'ej cpi gf 0'

Qpeg'yj g'Xkt wcnHkpcnu'Ngcf gtdqctf 'emugu.'vj g'vqr 't'cpngf '4'vgco ulcnkpegu'y km'cf xcpeg'vq'yj g' Ej co r kqpuj k 'O cvej 'qh'yj g'Xkt wcnHkpcnu'0Vko g'r gto kvkpi . 'vj g'hkpcn'Ej co r kqpuj k 'O cvej 'qh'yj g' Xkt wcnHkpcnu'eqo r gvklqp'yj km'dg'eqo r gvxf 'cdqctf 'KUUF wtkpi 'vj g'KUUHkpcnu'0'

### 50Ugcuqp 'T wngu"

#### 50B"Vqwt pco gpv'T wngu"

Cm'r ctvlekr cpw'lp'yj g'\ gtq'Tqdq'keu'J ki j 'Uej qqn'Vqwt pco gpv'4238'o wuv'cdf g'd { 'vj gug'vqwt pco gpv' t wngu-'

"Vj g'\ gtq'Tqdq'keu'vgco '\*O K'ITCwt qtc l'KNE+'ecp'wug'ltgr tqf weg'lr wdrkuj 'cp { 'wdo kwgf 'eqf g'0'

'kp'yj g'g'xgpv'qh'c'eqpvt'cf levkqp'dgwy ggp'yj g'lpv'gpv'qh'yj g'i co g'cpf 'vj g'dgj c'xkqt'qh'yj g'i co g.'O K' y km'entk { 'vj g'tw'g'cpf 'ej cpi g'yj g'o cpwcn'qt'eqf g'ceeqtf kpi n' 'vq'nggr 'vj g'lpv'gpv'0'

"Vgco u'ctg'g'zr gev'f 'vq'tgr qt v'cm'dwi u'cu'uq'qp'cu'yj g' 'ctg'hqwpf 0'

'C'odwi o'ku'f gh'p'f 'cu'c'eqpvt'cf levkqp'dgwy ggp'yj g'lpv'gpv'qh'yj g'i co g'cpf 'dgj c'xkqt'qh'yj g'i co g'0'

"Vj g'lpv'gpv'qh'yj g'i co g'uj cm'lxg'ttkf g'yj g'dgj c'xkqt'qh'cp { 'dwi u'wr 'vq'eqf g'htgg' g'0'

"Vgco u'uj qwf 'tgr qt v'dwi u'yj tqwi j 'vj g'qpr'p'g'ur r qt v'vqnu'0\ T't'gugtxgu'yj g'tki j v'vq'r quv'cp { 'dwi " tgr qt w'vq'yj g'r wdrk' hqt wo u'\*K'p'gegu'ct { .\ T'y km'y qtn'y kj 'vj g'wdo kvkpi 'vgco 'vq'g'puwt'g'yj cv'pq'vgco " utcvgi kgu'ctg't'g'xg'ngf +0'

"Eqf g'cpf 'o cpwcn'htgg' g'y km'dg'kp'gh'ge'v'5'f c { u'dgh'qtg'yj g'wdo ku'kqp'f gcf r'kpg'qh'c'eqo r gvklqp'0'

"Y kj kp'yj g'eqf g'htgg' g'r g'tk'f 'vj g'eqf g'uj cm'lxg'ttkf g'cm'lvj g't'o cvgt'kcu.'kpen'f kpi 'vj g'o cpwcn'cpf " kp'gpv'0'

"Vj g'tg'y km'dg'pq'dwi 'hzgu'f wtkpi 'vj g'eqf g'htgg' g'r g'tk'f 0Cm'dwi 'hzgu'o wuv'cng'r m'eg'dgh'qtg'yj g' eqf g'htgg' g'qt'ch'gt'yj g'eqo r gvklqp'0'

"I co g'ej cm'gpi g'cf f'kl'qpu'cpf 'c'ppq'w'pego gpv'qh'VDC'x'cn'w'gu'lp'yj g'i co g'o cpwcn'o c { 'dg'dcu'gf 'qp' ng'uu'qpu'ng'ct'p'gf 'ht'qo 'g'ct'n'gt'r ctw'qh'yj g'vqwt pco gpv'0'

# 504'Gj keu'Eqf g"

æVj g\ T'vgo 'y kn'y qtnlf kki gpv\ 'wr qp'tgr qtv'qh'cp{ 'wpgj kecn'ukwcvkp.'qp'c'ecug'd{ 'ecug'dcuku0

æVgo u'ctg'utqpi n{ 'gpeqwtci gf 'vq'tgr qtv'dwi u'cu'uqpp'cu'yj g{ 'ctg'hqwpf =lpvgrpvcqpcn'cdwug'qh'cp" wptgr qtv'gf "dwi "o c{ "dg"eqpukf gtgf 'cu'wpgj kecn'dgj cxkqt0

æVgo u'uj cml'pqv'lpvgrpvcqpcn{ 'o cpl' wcv'vj g'ueqtkpi "o gj qf u'vq'ej cpi g'tcprkpi u0

æVgo u'uj cml'pqv'cwgo r v'q'i clp'ceeguu'vq'tgvt'evgf \ T'kphqto cvkp0

æY g'gpeqwtci g'yj g'wug'qh'r wdrl' hqtwo u'cpf "cmqy 'yj g'wug'qh'r tkcv'g'o gj qf u'hqt'eqo o wplecvkp0

æXwi ct'qt'qhgpu'xg'ncpi wci g.'j ctcuuo gpv'qh'qyj gt'wugtu.'cpf 'lpvgrpvcqpcn'cppq{ cpegu'ctg'pqv'r gto kwgf " qp'yj g\ gtq'Tqdq'keu'y gdukg0

æEqf g'uwdo kwgf 'vq'c'eqo r gv'cvkp'o wuv'dg'y tkv'gp'qpn{ 'd{ 'uwf gpv0

æRr{ gtu'o c{ "pqv'ceeguu'yj g'ko r ngo gpvcv'kp'pucpeg'qh'yj g'i co g'qt'o qf kh{ "cp{ "xctkcdngu'qh'yj g'qdlgev0 k'p'r ct'kwrt. 'yj g'cr k'cpf 'i co g'qdlgevu'uj qwf 'pqv'dg'f w r'ecv'gf "qt'o qf kh'gf "k'p'cp{ 'ecr cekv0

æUo wcv'qp'tgs wguu'o c{ 'qpn{ "dg'f qpg'o cpwcm{ 'xlc'yj g'y gdukg'k'p'v'g'ceg.'CRKecmu'hqt'uko wcv'qp'ctg" pqv'cmqy gf "gxgp'kh'f qcdng+0

SPACE-SPHERES; Ua Y'A Ubi U''

# 60Tgxkukqp"J kuvqt { "

"

Tgxkukqp"P wo dgt"	F cvg"	Ej cpi gu'O cf g"
300"	32"Ugr v04238"	Tgrgcug"Xgtukqp"
300"	33"Ugr v04238"	Eqttgevkqpu"vq'hkz<hki wtg"cz gu.'kgo "pwo dgtu."cpf 'hmpexkqp"J cu" kgo *40'
300"	36"Ugr v04238"	Eqttgevkqpu"vq'hkz<kgo "y gli j w'cpf "ceegrtcvkqpu."cpf 'hki wtgu" z.{"eqqtf lpcvgu'}
"	"	"

" "



NORTHROP GRUMMAN



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