CdhjWUʻjYfgigʻ5WcighjWHifV]X]hmi]bʻ<YUjmi@cUXYX':`ckg

ÚÈÙ&@ ac^{F} ÉÁOEÁÚæ|æ--FÉÁT ÈĆČ ¦& à `&@^\^GÁæ) å ÁÙÉAØã &@\^G

^{FÁ}Šænà[¦æną[a³∧ÁdÔ)`à^Á ÁVT ÜÁÌHÍÏĒÁW}āç^¦∙ãc.,&s^ÁÙdærà[`¦*Ána⁄ÔÞÜÙÉAGEÁ\`^ÁÓ[`••ā]*æ'|dEÂÌÏ€€€ÉÁ Ùdærà[`¦*ĒÁzdæ)&^ÈĂ ^{GY}WÓÒÜVUÞÒEÁFIEÁ\`^Ás\`ÁÓ¦[&@~dEÂIÏH€€ÁÙ&@a)dat® @a]EÉAZlæ)&^ÈÁ

Mpqy ngf i g"qp"Uwur gpf gf "Ugf ko gpv'Eqpegpvtckqp"*UUE+"ngcf u"vq"c"dgwgt"wpf gtuvcpf kpi "qh'ugf ko gpv'tcpur qtv' f {pco keu."y j kej "ku"qh"o ckp"kpvgtguv'vq"wpf gtuvcpf "tkxgt"i gqo qtr j qni {"qt"j cpf ng"yj g"y cuvgy cvgt"tgi wncvkqp"cpf " vtgcvo gpv0'Hqt"yj ku"r wtr qug."qr vkecn"cpf "ceqwurke"wvtdkf kk{"ctg"dqy "wugf "vq"o qpkqt"eqpvkpvqwur{"yj g"uwur gpf gf " uqnkf u"eqpvgpv'kp"y cvgt0'Qr vkecn'wvtdkf kk{"ku"yj g"o ckpn{"wugf "o gyj qf."cpf "dtkpi u"dgpghkv'kp"eqo r ctkuqp"vq"encuvkecn" uco r nkpi 0J qy gxgt."tgegpv'uwuf kgu'uj qy gf "qr vkecn'o gcuwtgo gpwu'kpeqpukurgpe{0"

C"nqpi "vgto "ceqwurke"cpf "qr vkecn'o qpkqtkpi "eco r cki p"kp"c"y cuvgy cvgt"pgyy qtn'tgxgcni"pqvkegcdrg"f khgtgpegu" dgw ggp"y g"vg q'vgej pks wgu. "gur gekcmf "f wtkpi "uvqto "y gcvj gt"tgeqtf kpi u0'

Ko'tgi ctf '\q'\y g'ncvguv'uwd kgu 'kp''gzegr vkqpcn'ukwcvkqpu'uwej ''cu'tckp {'r gtkqf u'kp'y cuvgy cvgt 'qt'hrqqf u'kp'tkxgtu '\y g'' qr vkecn'wtdkf kk ('f cvc''ctg''hcng''cpf ''o c { ''ngcf ''q''c''j wi g''wpf gtguvko cvkqp''qh''y g''UUE0'Vj ku''o kukpvgtr tgvcvkqp''ecp'' j cxg''j gcx { ''eqpugs wgpegu''qp''y cvgt''vtgcvo gpv'cpf ''o cpci go gpv0'Qwt ''ncdqtcvqt { ''y qtn''y kn''eqo r ctg''y g''ceqwuvke'' cpf ''qr vkecn'dgj cxkqwt 'hqt''uwur gpukqp''qh'hkpg''o cvgtkcn'*o kpgtcn'cpf ''qti cpke+''cv'j wi g''eqpegpvtcvkqpu ''g0' 072''i In ''cu'' gzr gevgf ''f wtkpi 'I'nqqf u''qt'tckp''gxgpvu0'

? Ynk cfXg." Qr vkecn'' wurddf kw{." Ceqwurke." Dcennecwgtkpi ." Cwgpwcvkqp." Uwur gpf gf " Ugf ko gpv." O qpkqtkpi ." Y curgy cvgt0

%"=bhfcXiWMjcb

Qr vkecn'cpf "ceqwnke" wtdkf kv{ "ctg"dqy "wugf "vq"o qpkqt" eqpvlpwqwun{"yi g"uwur gpf gf "uqtkf u"eqpvgpv"kp" y cvgt0'Cu" qr vkecn'wtdkf kv{ "ku"y gm'guxcdrkij gf "cu"c"xcnwgf "uwur gpf gf " uqtkf u"eqpegpvtcvkqp" *UUE +"o gcuwt go gpv"kp" y cuvgy cvgtu"]3_."y qtm'qp"ceqwurkeu "ku"uxkni"kp"r tqi tguu"]4_0'Kpf ggf ."yi g" wug"qh"kpgzr gpukxg"qr vkecn'wtdkf ko gvgtu "kpuxcngf "cv"ur km' r qkpu"kp" y cuvgy cvgt"pgy qtmi"o cngu "kv" quukdng "vq"o ggv" yi g" tgi wucvqt {" tgs wkt go gpu" hqt" yi g" guvko cvkqp" qh" yi g" r qmwcpv"nqcf u"kp" vcpuhgt "cpf "f kuej cti g"kp" vgto u"qh"UUE0' D{" wukpi "tki qtqwu" ecnkdtcvkqp" r tqvqeqni" hqt" o qpkqtkpi " cpf "eqttgmvkqp" qh" qr vkecn' wtdkf kv{." guvko cvkqp" qh" UUE" mccf "cv"y g"gxgpv"cpf "cppwcn'uecngu"ku"npqy p"y ky "c"o wej " dgwgt" r tgekukqp" mxgni yi cp" y j cv" ecp" dg" cej kgxgf " d{" encuukecn'uco r nkpi 0'J qy gxgt"tgegpv'uwf kgu"]5."6_'uj qy gf" qr vkecn'o gcuwt go gpwi"kpeqpukuype {0'

Ko" cf f kkqp." f wtkpi " c" npi " vgto " ceqwavke" cpf " qr vkecn" o qpkqtkpi " eco r cki p" kp" c" y cuvgy cvgt" pgvy qtm" o clqt" f kthgtgpegu" dgvy ggp" vjg" vy q" vgj pks vgu" j cxg" dggp" qdugtxgf "]7_0' Vjg" vy q" vgj pks vgu" dgj cxg" f kthgtgpvn{" f wtkpi "ft{"y gcvj gt"qt"uvqto "y gcvj gt"tgeqtf kpi u0'F wtkpi " f t{"y gcvj gt"eqpf kkqpu." cm' vgj pks vgu" tghrgev' vj g" f ckn{" e{eng"qh'j vo cp"cevkxk{0'F wtkpi "c"uvqto "gxgpv." vj g"f ckn{" e{eng"qh'j vo cp"cevkxk{"ecp"uvkni'dg'i vguugf "qp" vj g"qr vkecn" wtdkf kk{0'J qy gxgt"kk'j cu"cp" vpgzr nckpgf "my gt"cxgtci g" xcnvg0'Vj g"f ckn{"e{eng"dgeqo gu"kpxkidng"qp" vj g"ceqwavke" wtdkf kkgu" y j kej " kpetgcug" d{" c" hcevqt" 322." f wtkpi " y g" tckphcm0' Vj ku" kpetgcug" qh" vj g" ceqwavke" wtdkf kk{" xcnvgu" eqwrf " dg" gzr nckpgf " d{" cp" kpetgcug" kp" UUE" cpf kqt" c" o qf kthecvkqp"qh'y g"r ctvkerg"eqo r qukkqp"]8_0'

Kp" yi ku"r cr gt." y g" vt {" vq" eqphto ." yi tqwi j " mdqtcvqt {" o gcuwtgo gpvu." qwt" j {r qyi guku" gzr mkpkpi " yi gug" qdugtxcvkqpu<"hqt"qr vkecn'wtdkf kv{."c"j wi g"kpetgcug"kp"UUE" ecp"ngcf 'hktuv'vq"c"uki pcn'ucwtcvkqp."hqmqy gf "d{"gttqpgqwu" o gcuwtgo gpvu0'

&"AYN\cXg`UbX`aYUbg

&"%A Yh\ cXc`c[m

Kp" ý ku" uwd {" y g" wugf " y j gcv" ucctej ." y j kej " ku" c" i qqf " uwttqi cvg"qh"qti cpke" y cuvgy cvgt" o kzwstg"cpf "tkxgt" o wf 0' Rctvkengu" j cxg" cp" qxqkf " uj cr g" y kj " c" f kco gvgt" ctqwpf " 3: μο 0'Eqpegpytcvkqp"qh'y j gcv'uwctej "xctlgu"htqo "2027"i hi' wr "vq" 8207"i h0' Vj g"i qcn"ku" vq" ej geni'y g" nkpgctkv{" qh" y g" ceqwarke"tgur qpug"cpf "vq"qdugtxg"ucwtcvkqp"cpf "hqmqy kpi " f getgcug"qh'y g"qr vkecn'wtdkf kv{0'

&"&`A UhYf]U`

Kp" qtf gt" vq" gxcnwcvg" dqvj " ceqwuxke" cpf " qr vkecn" ej ctcevgtkuxkeu" qh" vj g" r ct vkengu." cm" o gcuwt go gpwu" y gtg" r gthqto gf " cv" tqqo " vgo r gtcwxtg" kp" c" 72" N" y cvgt" vcpm" *hki wtg"3+0'



Hki wtg'3<'Gzrgtkogpvcn'ug√wr0'

Vj g" vcpni ku" kkngf " y ky " vcr " y cvgt." pq"f kur gtucn'ku" vugf 0' J qo qi gpgqvu" uvur gpukqpu" qh'r ctvkengu" ctg" qdvckpgf " d { " eqpvkpvqvu" uvkttkpi " y ky " c"r tqr gngt" cv' y g" dqvqo " qh' y g" vcpm" y ky " cp" cf lvurcdng" htgs vgpe { " f gr gpf kpi " qp" y g" r ctvkengu" pcvvtg0' Vj g" qr vkecn' wtdkf ko gvgt" cpf " y g" vcpuf vegtu" ctg" cvcej gf " q" y g" vcpni'y cn0'Cp" cvgpvcvqt "ku" r rcegf " qp" y g" dgco " pgct" y g" vcpni'y cn1'kp" qtf gt" vq " cxqkf"

&"('CdhiWU 'a YUqifYa Ybhg'

Vj g" qr vkecn' wtdkf kv{" y cu'' eqp vkp wq wun{" tgeqtf gf " d{" c" wtdlf ko gygt" *Uqrkcz" ue." J cej " Ncpi g+0' Vj g" o gcuwtkpi " r tkpekr ng" ku" dcugf " qp" c" eqo dkpgf " kphtctgf " cduqtr vkqp" uecwgtgf "rki j v" vgej pks wg0' Wukpi " vj ku" o gvj qf ." vj g" rki j v" uecwgtgf "ukf gy c {u"d { "y g"wtdkf kv{ "r ctvkengu"ku"o gcuwtgf " qxgt" cp" cpi ng" qh"; 2" f gi tgg0' KV y cu" ecnkdtcvgf " y ky " c" Hqto c| kp" Ucpf ctf." i kxkpi " xcnwgu" kp" P gr j grqo gvtke" Vwtdlf kv{ "Wpku"*P VW+0'Vj g"wugf "qr vlecn'wtdlf kv{ "xcnvg"

uetggpgf 0'Qpg''ces wkukkkqp''e {erg''\cngu''cdqwi'42''o kpwgu0'

Hqt" ."y g"hkv"qh" "? "cuCE"- "du."cmqy u"c"f gvgto kpcvkqp"qh" yj g" pqto cnk gf " vqvcn' uecwgtkpi " etquu" ugevkqp" qh' yj g" r ctvkeng'kh'f gpukv{ "cpf 'r ctvkeng'tcf kwu"ctg"mpqy p"]9_0' Hqt" gcej " o gcuwtgo gpv." yj g" y cvgt" vgo r gtcwtg" y cu" tgeqtf gf "hqt"ceewtcvg"ecnewncvkqp"qh"yj g"ur ggf "qh"uqwpf 0' Vj g"ceqwurke"o gcuwtgo gpv'egm'f ko gpukqpu'y gtg"kf gpvkecn' cv'cm'htgs wgpekgu0'Vj g''r wng''tgr gykkqp''htgs wgpe{ "cpf "yj g"

kpuvt vo gpvcvkqp"eqpuvcpv"m, "vj g"pgct"hkgrf "hvpevkqp"cpf" yj g"r ctvkeng"ukt g"cpf "f gpukv{ "ctg"mpqy p. "kv"i kxgu"ceeguu"vq" y g"dcemuecwgtkpi "hqto "hwpevkqp"qh"y g"r ctvkeng0'Cu"qwt" cko "kupø/'y g"gzcev'f gygto kpcykqp"qh'y g"r ctykengu"ceqwuyke" ej ctcevgtkuvkeu'dwv'y gkt "eqo r ctkuqp"vq "y g"qr vkecn'qpgu. "kp" qwt"o gcuwtgo gpw."m;"ku"cpf "y km'tgo ckp"wpmpqy p0'Cnq." tcy gt"vq"wug"uqo g"go r ktlecn"hqto wrc"vq"eqttgev"qwt"f cvc." y g"ej qqug"vq"tgo qxg"vj g"pgct"hkgrf "vj wu"kpvtqf wekpi "pq" dkcu''vq''y g''tcy 'f cvc0'

Kp"c"ugeqpf "uvgr."cpqyj gt"nkpgct"tgi tguukqp"ku"f qpg"qp" " cpf " xgtuwu" y g" r ctvkeng" eqpegpvtcvkqp." hqt" c" i kxgp" htgswgpe{0 Hqt "y g" "hkx." "? ck0p"E"- "dk"c"unqr g"qh"ck"?" "ku"gzr gevgf " cu"uggp"kp"]9_0'Vj g"xcnwg"qh" "ku"f kt gevn{ "tgncvgf "vq"vj g" dcemuecwgtkpi "rtqrgtvkgu" qh' y g''rctvkengu0' Kb'' y g''

"Crrn{kpi " yi ku" o gyi qf." cp" kphqto cykqp" eqpegtpkpi " dcemecwgtkpi "*kpvgtegr v'n+"cpf "y g"cwgpwcvkqp"*unqr g"ĸ+" ku"qdvckpgf "hqt" c" i kxgp" eqphki wtcvkqp" qh" r ctvkeng" v{r g." htgs wgpe{ "cpf "eqpegpvtcvkqp0"

uki pcn'X_{to u}"cpf "y g'tcpi g't<" $\mathfrak{m}^{*}tX_{tou}+?\eta-\kappa t$ *3+"

Vj g" o gcuwtgo gpv" o gyj qf " ku" dcugf " qp" yj g" kpeqj gtgpv" dcemecwgtkpi "crqpi "c"dgco "htqo "cp"go kwgf "r wng"qp" r ctvkengu"kp"yj g"o gf kwo 0"Vj g"r tkpekr ng"ku"y gmlf guetkdg"kp"]9_."cpf "i kxgu"c"nkpgct "tgrcvkqp"dgw ggp"vj g"dcennecwgtgf "

o wn.kr ng" uecwgt.kpi 0' Qr vkecn' cpf " ceqwurke" *cv" w q"

Vj g" o gcuwtgo gpuu" y gtg" r gthqto gf " y kj " cp" WD/Ncd"

u{uvgo " *Wdgtvqpg." Htcpeg+" cpf " ugxgtcn' uvcpf/cmpg"

vtcpuf wegtu" cmqy kpi " o gcuwtgo gpvu" cv' f khgtgpv'

htgs wgpekgu" i qkpi "htqo "404" O J | "wr "vq" 32" O J | 0'Vj ku"

kpuxt wo gpv'ku'y g'redqt cvqt { 'tgr nkec"qh'y g"qpg'wugf 'hqt 'y g"

o gcuwtgo gpw"

&" '5 WcighjWa YUgifYa Ybhg'

hkgrf "o gcuwt
 go gpu.''y g'WD/Hrqy $0^{\prime\prime}$

htgswgpekgu+"

uko wncpgqwun{0'

Vj g"cpcn{ugu"y gtg"f qpg"cv" w q"htgs wgpekgu."40 : "O J | " cpf "907" O J | 0' Hki wtg" 4" uj qy u" yj g" cwgpwcvkqp" qh' yj g" r ctvkengu''cv'40 : 'O J | 0'

y gt g"

r gthqto gf "

''%5 WcighjWaYUgifYaYbhg

V? cO d*4+"

us wctgu'o gyj qf 0'

eqpegpytcykqp."cpf"c"cpf"d"eqpuycpyu"qdyckpgf"d{"rgcuy"

yjgtg" V" ku" yjg" qrvkecn' wtdkf kv{." O " yjg" r ctvkeng"

Slope at frequency 2.88 MHz

30

Hki wtg" 4< cwgpwcvkqp" cu" c" hwpevkqp" qh" eqpegpvtcvkqp" cv"

Qpg" ecp" ugg" ý cv' nkpgctkv{" ku" r tgugpv' dgw ggp" ý g"

cwgpwcwlqp" "cpf "vj g"r ctwleng"eqpegpvtcwlqp0P gxgt vj gnguu."

yj g"uvcpf ctf "f gxkcvkqp" ctqwpf "yj g"hkv"ku"t gncvkxgn{ "ncti g."

gur gekcm{"cv'my "eqpegpvtcvkqp" xcnvgu" *vpf gt" 308" i 1n+0'

Vj ku" ku" gcukn{ "gzr nckpgf "d { " yj g" wnxt cuqpke" y cxgngpi yj "

y j kej "ku'hcti gn{"j ki j gt"y cp"y g"r ctvkeng"ektewo hgtgpeg0'

C'| qqo ''y g'dcpf '']2='308'i ln_'ku'i kxgp'kp''Hki wtg''50'

40

50 C[g/I]

60

y = 0,1536x + 1,4077 R² = 0,9893

20

'"FYgi`hg`UbX`X]gWigg]cb

κ[1/m]

12

10

8

6

0

40 : "O J | 0"

10

wtdkf kv{" cpf " eqpegpvtcvkqp." y g" wugf " c" uko r ng" nkpgct" tgi tguukqp"qp"yj g"gzr gtko gpvcn"f cvc<"

Kp" qtf gt" vq" f ghkpg" vj g" vj gqtgvkecn' tgrcvkqpuj kr " dgwy ggp"



uki pcn'r tgugpv'kp''y g'tgeqtf u0'

cpf ''308''i hi'cv'40 : ''O J | 0'

Kp" yi ku" eqpegpytcykqp" tcpi g." yi g" rqy " eqpegpytcykqpu" eqo dkpgf "y ky i "kpcrrtqrtkcvg" y cxgngpi y i "ngcf vq" wpgzr nqkcdng" tgeqtf u." dgecwug" qh' y g" r qqtpguu" qh' y g"

907'OJ|0'



Cv' 907" O J | ." ý g" o ckp" r tqdrgo " ku" ý g" ceqwurke" dgco " cwgpwcvkqp"d{ "ý g"o gf kwo 0'Vj ku"ecp"dg"qdugtxgf "qp"dqý "

ewtxgu."cpf "uj qy u"vj cv"vj g"qr gtcvkpi "tcpi g"gzvgpf u"qpn{"

wr "vq"5807'i h0'Eqpegtpkpi "dcemecwgtkpi ."y g"tgi wrctkw{"

Hki wtg'7<"cwgpwcvkqp"cu"c"hwpevkqp"qh"eqpegpvtcvkqp"cv'907"OJ | 0"



Hki wtg"6<dcennecwgtkpi "xgtuwu"eqpegpvtcvkqp"cv/40 : 'O J | 0' Hki wtg" 7" uj qy u" yj g" cwgpwcvkqp" cpf " hki wtg" 8" yj g" dcennecwgtkpi 'hqt'yj g'907'O J | 'htgs wgpe{0'



kp''y g''tcpi g'']308='77'i ln_0'

Hki wtg" 6" uj qy u" yj g" dcemuecwgtkpi " qh" yj g" r ctvkengu" cv" 40 : 'O J | 0'Cu"yj gqtgvkecm{ "gzr gevgf ."c"unqr g"xcnwg"pgct" 207 "ku"qdugtxgf 0'Cnq. "yj g"xcnwg"qh"d_k"ku"pgctn{ "kpxctkcpv0' Vj ku" uj qy u" yj cv" wntcuqwpf " dcemuecwgtkpi " cv" yj ku" htgs wgpe{ "ecp"dg"c"i qqf "vtcengt"qh"r ctvkerg"eqpegpvtcvkqp"

50

40

60 C[g/I] 70

Hki wtg"9"uj qy u"yj g"tgur qpug"qh"yj g"qr vkecn"wtdkf ko gvgt" *Uqrkscz"ue."J cej "Ncpi g+"qxgt"yj g"y j qrg"tcpi g"qh"y j gcv"

uvctej "eqpegpvtcvkqp"*2027i ln/wr "vq'8207i ln+0"

''&:CdhjWU'a YUgifYa Ybhg'

2027i h0'

NTU

5000

4500 4000

3500

3000

2500

2000

1500

1000 500

C

NTU

900

800

700

600

500

400

300

200

100

0

0

10

20

tgur qpug'ku'i nqdcm{ 'hkpgct'wr 'vq'7'i h0'

y = 419,87x - 4,3123

 $R^2 = 0,9996$

0,5

30

Hki wtg'9<qr vlecn'wtdkf ks{ "cu'c'hwpevkqp"qh'yj g"eqpegpvtcvkqp0'

 $\label{eq:Vjgtg} Vjgtg" ku" c" xgt{" i qqf " nkpgctkv{" hqt" yjg" qr vkecn" o gcuvutgo gpv"kp" yjg"tcpi g"]2="4" i ln_"*hki wtg": +."cpf" yjg"$

Optical turbidity

qh'yj g"ewtxg."y kj "j gtg"cnq"c"uqr g"pgct"207."tgxgcni"y cv" kv" ecp" dg" c" i qqf " eqpegpytcyqp" kpf kecyqt" cntgcf {" cv"

Optical turbidity

14

Hki wtg": <"qr vkecn'wtdkf kv{ "kp'vj g'tcpi g']2="4i ln_0"

Chışt "807i İn'yi gi'witdki ko gygt "ıgcxgu"ku"qr gtcvkpi "ur cp"cpf" i qgu" kp vq" ucwitcvkqp0' Cpq yi gt" r j gpqo gpqp" ku" qdugtxgf " y j gp 'yi g'y j gcv'uxctej "eqpegpvtcvkqp"gzeggf u'6407"i In0Hqt" yi gug"j ki j "xcnıygu "yi g"qr vkecn'witdki kı{ "f getgcugu"y kij "yi g" kpetgcug" kp" r ctvkeng" eqpegpvtcvkqp0' Vj ku" dgj cxkqwt" ku" uvtqpi n{" r tqdngo cvke." dgecwug" kı' ngcf u" vq" r quukdng" gttqpgqwu"gxcnıxcvkqpu"qh"UUE0'

1,5

2

C[g/I] 2,5

'"`8]gW/gg]cb`

Vj g"npqy ngf i g"qh'ugf ko gpv'tcpur qtv'ej ctcevgtkukeu'ku''cp" ko r qtvcpv' kuuwg" kp" vgto u" qh" ugy gt" cpf " uwthceg" y cvgt" o cpci go gpv0'Kpf ggf."yj g"uwur gpf gf "uqtkf u''tcpur qtvgf "d{" yj g"y cvgt"ctg"c "xgevqt"qh'r qmwkqp"cpf "yj g{"o c{"cnq"dg" r j {ukecm{"f co ci kpi 0'C"pqvkegcdrg"r ctv'qh" yj g"ugf ko gpv" vtcpur qtv'ku''r gthqto gf "f wtkpi "gzegr vkqpcn'gxgpvu''uwej "cu" uvqto "r gtkqf u"kp" y cuvgy cvgt"qt"hqqf u"kp"tkxgtu0'F wtkpi " yj gug"gxgpvu."yj g"UUE"ecp"i tqy "uvtqpi n{.''ncti gn{"qxgt"yj g" v{r kecn!ft {''y gcyj gt"xcnwg''yj kej ''ku''ctqwpf ''207''q''3i h0'' Hqt"ceqwake"o gcuwtgo gpvu "y g"wugf "htgs wgpe{"ghhekgpe{" ku"f ktgew{"eqttgrcvgf "vq"y g"o gcp"r ctvkerg"f kco gvgt0'Nqy " htgs wgpekgu" ctg" pqv" cf cr vgf "vq" hpg" r ctvkergu0' Vj ku" gzr rckpu"y g"r qqt"tgur qpug"cv"40 : "O J | "hqt"rqy "y j gcv" uvctej "eqpegpvtcvkqpu0'D{"kpetgcukpi "eqpegpvtcvkqp." y g" cwgpwcvkqp"qh"y g"o gf kwo "kpetgcugu"cnq. "gur gekcm{ "hqt" j ki j gt" htgs wgpekgu0' Vj ku" uvqr u" y g" qr gtcvkpi " tcpi g" cv" 5807i hf hqt" y g" 907" O J | "htgs wgpekg0" j gruu." c" eqo dkpcvkqp"qh"ceqwavke"htgs wgpekgu"i kzgu"y g"r quukdktkv{" vq" eqxgt" c" y kf g" tcpi g" qh" r ctvkerg" eqpegpvtcvkqpu."

Hqt"qr vlecn"o gcuwtgo gpw."c" xgt {"i qqf "hpgctla{"kp" yj g" tcpi g"]2="4i ln_"cmqy u" yj g"o qpkqtkpi "qh" yj g"UUE "kp" ft {" y gcyj gt"eqpf kkqpu0'Dw" yj g"ucwtcvkqp"ghlgev"cr r gctkpi "cv" eqpegpvtcvkqpu"qh"ugxgtcn"i ln"r tgxgpvu"ku"wug"f wtkpi "uvqto " y gcyj gt" eqpf kkqpu0' Hwt yj gto qtg." kp" yj g" ecug" qh" j ki j eqpegpvtcvkqp. "yj g"hcev' yj cv' yj g"qr vlecn'wtdkf kw{"f getgcugu" d{" kpetgcug" qh" eqpegpvtcvkqp" ecp" ngcf " vq" j wi g" wpf gtguvko cvkqp"qh"UUE"d{"yj g"y cvgt"tguqwteg"f gelukqp/ o cngtu"cpf 'r tcevkkqpgtu0'

Cp" gzco r ng" qh" hlgrf " o gcuwtgo gpwl" y cv" kmwut cvgu" y ku" dgj cxkqwt" ku" i kxgp" qp" hki wtgu" ; " cpf" 320' Vj g" o gcuwtgo gpwl" y gtg" f qpg" kp" y g" gpvt {" ej co dgt" qh" y g" y cuvgy cwgt" vtgcvo gpv" r ncpv" qh" I tgcwgt "P cpe {" *472"222" r Q00' Ku" tghgtgpeg" hqy "ku" 342"222" o ⁵ If c {0'87' " qh" y g" y cvgt "eqo gu'htqo "c"eqo dkpgf "ugy gt"u { uvgo 0"



Hki wtg"; <'Ukz 'f c {u't geqtf kpi 'kp 'f t { 'y gcvj gt 'eqpf kkqpu'

Dqy "hki wtgu'uj qy "vy q"qpnkpg"ceqwukle"o gcuwtgo gpvu"*cv" 20 37"O J | "cpf "60889"O J | + "qpg"qpnkpg"qr vlecn'wtdkf kk{" o gcuwtgo gpv."cpf "ugxgtcn'uco r nkpi u0'Hki wtg"; "tghrgewi'yj g" f ckn{"e{eng"qh'j wo cp"cevkxk{"f wtkpi "ft{"y gcy gt0Qr vlecn' wtdkf kk{"j cu"cp"cxgtci g"xcnwg"qh'372"P VW."cpf "ceqwuke" o gcuwtgo gpvu" j cxg" xcnwgu" ctqwpf " 32^{/4}" ctdkatct{" wpk/" *c0x000'Hki wtg"32"uj qy u"c"uvqto "gxgpv0'Vj g"f ckn{"e{eng"qh" j wo cp"cevkxk{"ecp"uvkni'dg"uggp"qp"yj g"qr vlecn' wtdkf kk{" y gcy gt" y gc'j gt"? y j kej "j cu"c"unki j wt"nqy gt"cxgtci g"xcnwg"yj cp"f wtkpi "ft{" y gcy gt "*92"P VW40'Kp"eqpvcuv'vq"qr vlecn' wtdkf kk{."dqy" ceqwuke" o gcuwtgo gpvu" eqpukf gtcdn{" kpetgcugf." d{" c" hcevqt"322"eqo r ctgf "vq"ft{"y gcy gt0'Kp"yj ku"ukwcvkqp."yj g" ceqwuke"o gcuwtg"cv'20 37"O J | "ku"f qo kpcpv'uwi i guvkpi" y g"r tgugpeg"qh'dki i gt"r ctvlengu "ctqwpf "822"To "f kco gygt0"

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Hki wtg"32<"Vj tgg"f c{u"tgeqtf kpi "y k
 i "tckphcm'gxgpv"qp"vj g"hktuv" f c{0'

("GiaaUfmi

Kp"yj ku"r cr gt. "y g"eqo r ctgf "qr kecn'cpf "ceqwuke"wtdkf ks{ " kp" j gcx { "mcf gf "hmy u0' Vj g" i qcn' y cu" vq" xgtkh{ "qr kecn" o gcuwtgo gpvu" kpeqpukugpe { "y j gp" y g" eqpegptckqp" i tqy u"utqpi n{0'Tguwnu" uj qy "y cv."kp" eqpf kkqpu" y j kej " ecp"qeewt"f wtkpi "tckp { "r gtkqf u"kp"y cuvgy cvgt "qt"hmqf u"kp" tkxgtu "qr kecn" wtdkf ks{ "ecp" pqv" qpn{ "ucwtcvg." dw" cmq" i kxg" gttqpgqwu" tguwnu" y kj " dgj cxkqwt" qr r qukg" vq" y g" ur gekheckqpu< wtdkf ks{ "f getgcugu" y j gp" UUE" kpetgcugu0' Vj ku" r j gpqo gpqp" ku" c" r j {ukecn' dgj cxkqwt" qh" qr kecn' wtdkf ko gvgtu."o quv"r tqdcdn{ "npmgf "vq"nki j v"cwgpwcvkqp0' Vj g" ceqwuke" o gcuwtgo gpvu" uj qy " y gkt" wughwrpguu" cu" c" tqdwwr's wcrkwcvg"f guetkr vkqp" qh" UUE" kpto cykqp" ku" eqpukuvgpv'f wtkpi "ft { "y gcvj gt" cu" y gm" cu"f wtkpi "uvqto " y gcvj gt"eqpf kkqpu0'

FYZYfYbWYg'

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j4_" I wgttgtq" O" (" F k' Hgf gtleq" X<" " Uwur gpf gf " ugf ko gpv" cuuguuo gpv" d{" eqo dkpkpi " uqwpf " cwgpwcvkqp" cpf " dcennecwgt" o gcuwtgo gpvu'o"cpcn{ vecn'o gyi qf "cpf "gzr gt ko gpvcn'xcnkf cvkqp." Cf xcpegu"kp"Y cvgt"Tguqwtegu."335."389/39; "*423: -0"

]5_"T {o u| gy ke| "C." gy'crθζ"O gcuxtgo gpv"f khtgtgpegu"dgw ggp" wtdkf kk{" kpurt wo gpvu." cpf " y gkt" ko r nkecvkqpu" hqt" uwur gpf gf " ugf ko gpv"eqpegpvtcvkqp"cpf "nqcf "ecnewrcvkqpucζC"ugpuqt"kpvgt/ eqo r ctkuqp"uwuf {."Iqwtpcn"qh"Gpxktqpo gpvcn'O cpci go gpv"3; ;." ;; "*4239+0'

]6_"Xqkej kem'P." gv" cnθ
* Vgej plecn'P qvg
- Hcmg" nqy "wtdlf k{"
tgcf kpi u" f wtkpi " j ki j " uwur gpf gf " ugf ko gpv" eqpegp vtcvkqpu."
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]7_"Rcmct³u"C."*gv'ct*B[#]"Nqpi /vgto "ceqwurke"cpf "qr vkecn'wtdkf kv{" o qpkqtkpi " kp" c" ugy gt." KY C" Y qtrf " Y cvgt" Eqpi tguu" (" Gzj kdkkqp"4238.'Dtkudcpg.'Cwurtcrkc'[%]4238+0'

]8_" Rcmct³u" C." gv" cr0² " Uwur gpf gf " Ugf ko gpv" O qpkxqtkpi < Eqo r ctkuqp" dgw ggp" Qr vkecn" cpf " Ceqwurke" Vwtdkf k{." Rtqeggf kpi u" qh" yj g" 36yj " Kpvgtpcvkqpcn' Eqphgtgpeg" qp" Wtdcp" F tckpci g. "Rtci wg" \$4239+0'

]9_"Uej o kw'R."gv'cnX""Uwur gpf gf "Ugf ko gpv'ej ctcevgt k cvkqp"d{" O wnklt gs wgpe{"Ceqwurkeu. "KUWF 32."Vqnt
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