



Module 1.

1.1

1.2

!"#\$%&'#
('*+'(, #+. */'0"#1#0). 23")#\$"/#(). 4"0/#&'*, *5, 6-"/'#0#\$"/#*3"/0'/" 7"*0/#(80/#1#80)"#)% , -'/%/
9#: ; "#<2/'*"//#: ="*0>#?<@AB#: , /C&.)+'#?@ADEB

F2# (. '*0#\$"#32"# \$62*# ()80"2)#+. 7 7")+' , -#

!G"*3').**"7"*0#(>/#\$2#().4"0#

R*3').**"7"*0#%+. *. 7'P2"#"0#(-'0'P2"#"

!

!"#\$%"&'()('*+',-%&./'0,121345&%/-'61\$4-45&%/5&4'6%&7%2-'428&%2,%.9"88%,-%.'\$"'842"2:"#4\$4-0';<&2'6.1=-'

>.4-?.%/'

>%5&%\$%/842"2,%&./'.%,@%.,@%2-'

A274.122%3%2-'
0,121345&%'

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H#)!+>#6(?!9#!4#>#+())!;1#>;)!#?)!.6+.)!3(!#+!6(5: #+.6.*3+A!
L+#!: 68430; 83+3: *#!)6*+#!=(?!5; +P4#!(+#!6(5: #+.6.*3+!9#!16!@439(8.*3+!#!
(+#!843*))6+8#!9#!)4#>#+())!4; #1)A!
L+!.6(?!9?+7!6.*3+!76*D1#!#!.) .6D1#A!
L+#!9#>*)#!13861#!#!.(+!.6(?!9#!8M6+5#!) .6D1#)A!
H#)!: 648M;)!7*+6+8*#4)Q: 648M;)!9#!86@*.6(?!+6.*3+6(?!86@6D1#!)9#!73(4+*4!9#!
)3(48#!)9#!7*+6+8#; #+.)!+6.*3+6(?!) (@@1; : #+.6*4#)0A!
L+#!15#).*3+!9#!16!9#..#!@ (D1*=(#A!

>.4-?.%/'	>%'5&%\$%/'842''2,%&./'.%,@%,@%2-'
	L+!+>#6(!;1#>;!9#!9;>#13@@#: #+.083++#8.*>. ;!9#!12*+746).4(8.(4#!9(!@6/)#!
A274.122%3%2-' 61\$-45&%'	L+!)3(.#+!@31*.*=(#!@3(4!1#!@43f#!.@43@3);#! L+!#69#4)M*!@31*.*=(#!#.!9#!)!@31*.*=(#!)!(D1*=(#!)!>313+.64*).#)#! L+#!).6D*!*. ;!@31*.*=(#! "6!@6*?!#. !16!); 8(4*. ;#!
B642412'6&#\$45&%'	L+!)3(.#+!5; +; 46!183+).4(8.*7!9(!)#8.#(4!@(D1*8!@3(4!1#!@43f#!.@43@3);#!

R*3'). **" 7"*0#42)'\$'P2"#'0#)%Q-" 7"*0, ')"#

>.4-?.%/'

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> . 4- ? . % /'

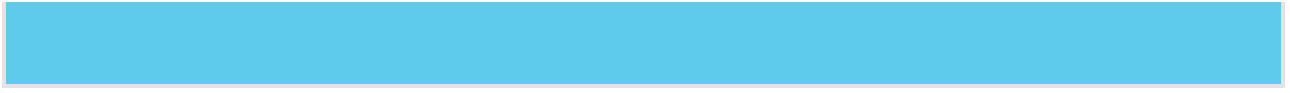
> %'5&%\$%/'427%/-4//%& . /' . % , @% . , @%2-'

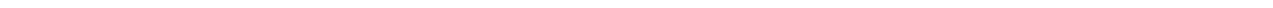
C1\$4-45&%'

L+#!@31*.*=(#!816*4#!#+!: 6.*P4#!9#!.46+)@34.)#

H#!13*)!76>346D1#!6(?!*+>#.*))#(4)#!

H#!@31*.*=(#)!M64: 3+*); #)!#+.4#!1#!9*77; 4#+.)! : *+*).P4#)Q9; @64.#: #+.)#





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>' \$03/&-\$%)/' \$-..2%&(5)
! ?%&23,)0+%@2&-\$%@2-A*()(&).&2A*(5)
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%()%)\$; &'()*\$&'1)\$* - '2\$*\$)*@1A4\$4, ; '3\$2*3\$; 4(<\$&2*3\$*B1, #&'>*C4,)3\$***D\$##\$.*/\$2%:%#2*3\$; 4(<\$&2**#, =(4''2*C4E%\$*>#,* - ''&D(3\$! 6789*
; \$4- \$&&\$)&*3\$*3'+)'4*3\$2*(=<\$%&'+2*; (14'A(84\$; 4(%\$2212*3\$*3''A\$#(: ; \$- \$)&*30')+4, 2&41%&14\$2*B1'^2('\$)&*1; ''%'+B1\$2?&6\$214, =#\$2?7&&\$'C), =#\$2?&
8'', #2, =#\$2*\$&*3'+)'2*9\$- ; (4\$##\$- \$)&.*
! F3\$)&+'\$4#2\$; 4(<\$&2*; 4'(4'&, '4\$2*C4E%\$*>*3\$2*; #,)2*3'4\$%&&\$142G3(%1- \$)&2*3\$; (#&'B1\$'C''''4, #\$.**
! /\$2\$%&&\$14; 4'A''*\$2&; #12'\$)%#>*)A\$2&4'3,)2*3\$2*, %&'+2*\$H'2&,)&2*3()&#,*A', =#&'**+),)%54\$*\$2&, A'4''\$?B1\$*3,)2*3\$)(1A\$, 1H'; 4(<\$&2*3()&#,*
- '2\$*\$)*@1A4\$*- ; #B1\$*3\$)(1A\$, 1H'%(1&2*\$&'4'2B1\$2*.
! J)C, C\$- \$)&'%()&'1*3\$2*; , 4&'\$2*; 4\$),)&2*\$&'%(- - 1)'%, &'()*&4,)2; , 4\$)&\$*; \$4- \$&&,)&*3\$; 4\$)34\$*\$)*(- ; &\$*#2*3\$- ,)3\$2*\$&; 4''(%1; , &'()2*
#(% , #2\$*
! /0'3\$)&+'%, &'()*3\$; 4(- (&\$142*\$&*3\$*3'+)\$2\$142*31*; 4(<\$&2*; \$1*K&4\$3''&\$4- ') ,)&; (14*2, *4'', #2, &'()*.**
! /07C\$)%\$3\$3''A\$#(: ; \$- \$)&*3\$*#L)'()* , +4'% ,)\$M7NL70PJQ7NR*, %4''**1)*(1&'#3\$2''#%&'()*\$&*3\$%()2\$'#; (14*\$2*; 4(<\$&2*; (4&,)&#*\$)(- *3\$*
QFN7*S1, #&:*/ , =#\$MQS/R*3,)2*#% , 34\$31! \$4A%\$N\$#A\$4: 6(3\$#M! N6R.*T(=<\$%&'+2&*3\$4''31'4\$*#&&\$- ; 2*)''%\$22, '4\$; (14'; , 22\$4*3\$2*
; 4(: (2'&'()*2*3\$; 4(<\$&2*># , %U&14\$+'),)%54\$?*\$)*+\$%&1,)&*3\$2'A''4'+%, &'()*2'4, ; '3\$2*\$&*\$)*1,)&*3\$2*2: 2&5- \$2*3\$)(&, &'()*\$&*3\$%()2\$*#
&\$%D)'B1\$.*
! /0''#, =(4, &'()*301)*- ,)1\$#%(- - 1)*214*\$*3''A\$#(: ; \$- \$)&*3\$2**)+4, 2&41%&14\$2%()&\$),)&*3\$2*#C)\$2*3'4\$%&4'\$2*\$&*3\$2*3'4\$%&'A\$2%()%)\$4),)\$*
; 4(%''314\$2*; (144, '8*; \$4- \$&&4\$3\$*\$%# , 4+'\$4*\$2*4U#2*3\$*\$%D, B1\$*, %&\$14*\$&'#2*\$E%D\$2*>*, %%(- ; #4'3,)2*1)*3''#, ''3''&\$4-)''M%&&\$''3''\$*, *3''<''&'**
\$)A'2, C''\$*3,)2*QFN7*VWVXOYWR.*
! /\$6,)1\$#3\$2*, %D, &2*3\$*#L)'()* , +4'% ,)\$ML7R*\$&*3\$*#7NL70PJQ7*\$2&*1)\$*2(14%\$*21; ; #''- \$)&, '4\$*>*(21#&\$4#(42*3\$#, *; 4''; , 4, &'()*301)*
; 4(<\$&.*

'?3'4'C''\$*\$&+'),)%''\$*; , 4*#2\$=,)B1\$2*
- 1#&# , &'4, #2*3\$*3''A\$#(: ; \$- \$)&'M\6N2R.*J##\$%D,)C\$*3\$+ ,]()*2&41%&14\$##\$#, *- ,)'54\$*3()*C(1A\$4)\$- \$)&2*3'+)'22\$)&*3''A\$#(: ; \$)&*\$&
C54\$)&#\$142*; 4(<\$&2*30')+4, 2&41%&14\$2? , 122*=')\$*3,)2*#2*- , 4%D'2*; 1=#%2%# , 22'B1\$2*B1\$*; (14'#2*; , 4&\$), 4', &2*; 1=#%

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	! F3\$)&'+\$4*\$2*4"21#&, &2*, &&\$)312*\$)*- , &'54\$*3\$*2\$4A'%\$2.*[\$1H0%"*3('A\$)&*K&4\$%()+ (4- \$2*, 1H*(=<\$%&' +2*3\$*3"A\$#(; ; \$- \$)&*31*; , :2*- , '2" C, #-\$ \$)&*, 1H%()%)\$; &2*31*; 4(-\$&?*, 1H*, A,)&, C\$2")31'&2?*, 1H*#- '&\$2*\$&>#,*; (4&"\$*31*; 4(-\$&?*, 1H*(; &'()2*&\$%D)'B1\$2*\$&, 1H*; 4(-\$%&'()2*3\$#,* 3\$- ,)3\$.*
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! a(14)'4*, 1H*; 4(- (&\$142*31*; 4(<\$&*1)*2(1&'\$)*&\$%D)'B1\$*D, 1&\$- \$)&*2; "%, #2'')"%\$22, '4\$, 1*3"A\$#(; ; \$- \$)&*3\$*; 4(<\$&2*30')+4, 2&41%&14\$2*')A\$2&22, =#\$2*_/\$2*+() 32*3\$*; \$)2'()*, +4%, ')*()&*\$H; 4- ""#\$14A'+')&'4K&>*)A\$2&4*3,)2*\$2*)+4, 2&41%&14\$2*214*#%*(&')\$&?>*() 3'&'() *B1\$*#2* ; 4(<\$&2*4"; () 3\$)&*>#\$142*%4'&54\$2*30')A\$2&22\$- \$)&.*/\$*- \$'##\$14* - (: \$)*3\$*4"; () 34\$*>%\$2*%4'&54\$2*\$2&3\$*+, '4\$, ; ; \$#>*3\$2*3"A\$#(; ; \$142*3\$* ; 4(<\$&2*; 4(+22'())\$#2*\$H; "4'- \$)&'2.*N\$2*\$)B1K&\$2*- \$)"\$2*, 1; 452*3\$*3"A\$#(; ; \$142*3\$*; 4(<\$&2*; 4(+22'())\$#2'()&- ()&4'')B1T'#2*''&, '\$)&*; 4K&2*>*(+4'4*#\$142*2\$4A'%\$2*, 1H*C(1A\$4)\$- \$)&*2, +4%, ')*2*\$&>*3T, 1&4\$2*; 4(- (&\$142*3\$*; 4(<\$&2?>*() 3'&'() *B1\$*#2\$*; 4(<\$&2('&*3"A\$#(; ; ""*()+(4- "- \$)&

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9, : : (!H7&87!/(!<-(: .1-(!.: <, -7&89(!/&86!(!<:&8!-H' ., 8&!/(!/HC(;, <<(: (87!/(!&!+M==@A!(67!
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38.?3(!0!X&Y38' 3;&@J(!<-, N(7!&!<, 3-!, KN(97.>!/(!/HC(;, <<(: (87!/B&: H;., -(-!B(>>.9&9.7H!/3!7-&>.9!
/(!7-&86.7!&3! <&66&' (!/(!>-, 87.1-(!/(!X&Y38' 3;&!&>.8!/(!>&9.;.7(-!(7! /B&99-, V7-(!;(6! &97.C.7H6!
9, : : (-9.&!(6! (7! ;&! 9, : <H7.7.C.7H! ' ;, K&!(! /(! ;&! Q&: K.(! (7! /3! S, 76T&8&6! /B&: H;., -(-! ;&!
9, 88(97.C.7H!-H' ., 8&!(!/3!+O26!(7!/ (19, 87-.K3(-!0!B.87H' -&7., 8!H9, 8, : .?3(!-H' ., 8&!(!/(!&!+M==@

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/(!/HC(;, <<(: (87!4C.&!(!]=M5!9, 3C-(!j ^Gf! ! /3!9, a7!7, 7&! /3!<-, N(7@J(!6, ;/(! (67!<&-7&' H!(87-(!
;&!kA+=!4f#Gf! ! 56! (6! , 3C(-8(: (876!K, 76T&8&.6!(7!Y&: K.(8!4e6"!! 5!(7!38(!63KC(87., 8! /(!;BhW1]]A!
4^GD! ! 5!4mC&;3&7., 8! /3!<-, N(7!]=MG!"E^^5@J&!<H-. , /(! /(!-H&.;6&7., 8! /3!<-, N(7!(67! /(!9.8?!4f5!&86@

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8(!6(!-&<<, -7&.7! ?3B0! ;&! 9, 867-397., 8! /3! <, 87@ J(!;7.' (! &! <3! [7-(! -H' ;H! &<-!6! /(! 8, 3C(;;(6!
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	<p>IT-3%, &', &'("8">*/3-""8<#"/-', &8""30%38'-+0#02*\$%&8'3&/8'\$%&/&8'1)0<)"22&8' , &+)-""3'0#', T&21/0'8A'/T#J&+3'0#', T")<&#3', "#8'/T-+0#02*\$%/0+/'/1&#, "3'/1" , %)-&', &'/'"+0#83)%+3'0#A'&3'/&8')&+&33&8'(8+''/8'""33&#, %&84" IT-3%, &', &'("8">*/3-""2&#3'0##-'/&8'#0%. &/&8'""+3*. *3-8', &'1)&83""3'0#', &'8&). *+&8' , *)&+3&2&#3'/-&8'""10#3'6'<&83'0#', %'1-''<&'&3', %'10#3A', -, 0%''#&2&#3'""M' (0#3'V)&8A'1&3'38'+022&)+&8'&3'+022&)+&8', &', -3""/4" _/&""'-<''/2&#3'""#*, *\$%- '\$%&/&'10#3')&/&'&""*3', &%M'+&#3)&8'30%)&83'\$%&8'1)*2""&8' &3'""<2&#3&""*3'""#8'/&8'1088">*/3-8'+022&)+""/8', "8'/&', 02""#&', &8'>*&8'&3' &8&). *+&84' I&'1)OJ&3'""('3'/O>J&3', T%#&'-. ''/%'3'0#', T'21""+3'&#. *)O##&2&#3'"/&3'80+""/4I&8' 1")&8'#'3'0#""M'&3';0#&8', &'1)O3&+3'0#', &8'""#*2""M'8""%. ''<&8'8'3%-8'S'1)OM'2'3-' , %'8'3&', %'1)OJ&3A'""#8'\$%&/&8'. */&8'&3'. */''<&8'&M'83'""#38', &8', &%M'+b3-8', %'(/&%. & L'2>V; &'0#3'('3'/O>J&3', T%#&'""33&#3'0#'1'')3'+%/V)&4'R('#, &'2*#*2'8&)/&8' *21"+38'#-<'3'(8'8%)/T-+0/0<*&'&3'/&8';0#&8', T7">3'3'0#'7%2""#&A'/&211'"+&2&#3A' T-+7&/&'&3'/'83)%+3%&)', %'10#3'&3', &'/'")0%3&', T'+V8'0#3', c'('')&'O>J&3', T%#&'& ""33&#3'0#'1'')3'+%/V)&'""83', &', &'/'"+0#+&13'0#4'^%3)&'&8'+0#8', -)'3'0#8A', &8' 2&8%&8'0#3'-3-1)0108-&8'10%)'2*#*2'8&)/T'21"+3'#-<'3'(, &8'3)'. ""M', &'& +0#83)%+3'0#8%)/T&#. *)O##&2&#3A'#03""22&#3'""('#, T-. *3&)/""10/1%3'0#', &'T&'""A' &/&'>)%*3'&3'/&8'. *>)"3'0#84' IT-3%, &', &'("8">*/3-""1)0108-/'"+)-""3'0#', T%#'+02*3-+0#J0'3', &'<&83'0#', %' 1)OJ&3'\$%""""*3'/'")&810#8">*/3-', IO)<""#*8&)/""0%/&8'80%)+&8', &'('""#'+&2&#3A', & , -3&)2*#&)/""1)01)*-3-A'/'""2*8&'&#d%.)&'&3'/&'301&', &'1"88""3'0#', &'2'")+7-A'/'" 10/'3'\$%&', &'<&83'0#', &'1)OJ&3'&3'/'83)""3-<*&', &'2""#3&#""#+&A'&3', &'&+)-&'%#80%8= +02*3-', &'<&83'0#&#. *)O##&2&#3'/'&4'Q&'+02*3-""-3-2*8'&#1'/'"+&'1'")/&8' <0%. &#&2&#38'>038K""#""8'&3', "2>*&#4' I""! RP'""'-<''/2&#3')-''/8-'%#&'-. ''/%'3'0#'+021/V3&', %'1)OJ&3'&3'""1)-1'")-%#' , 0+%2&#3', T-. ''/%'3'0#&'&#EGDD4'</p>
6\$2\$-&(A'*(. -B%)C)#&H, . '*	<p>\0%)/&'10#3'1)*#+1''A'/&'20, V/&'&M3)''', 088-'&#>-30#1)-+0#3)""#3'""-3-+70'8" 1'")+&'&\$%T'/1)-8&#3&', &8'""'. "#3'<&8')&'3'(8'""M'+0c38', &'&+0#83)%+3'0#A', &3'""'. ""M' , &'>-30#A', &'&+0#+&13'0#'-+0#02*\$%&'&3', T'21"+3'8%)/T&#. *)O##&2&#3'1'")')""110)3'""M'301&8'S'10%3)&8'+""880#8'&#>-30#1)-+0#3)""#3'&3'S'7"">""#84'</p>
7-H, &'&(&)%*. (*\$--@*\$, **&(.*	<p>e#', *((-)&#, '83'8%). &#%#'''. &+/'&'L*2>"">K&A'S'/'8%3&', &'&\$%0'+&', &#&'&(')')&(%8-' , &'/'88&)'1"88&)/&'10#3'8%)'80#3&))30)&4'I'"+0#+&13'0#', %'10#3'""#8", c'f3)&'& 20, *(*-&4'Q&3'-1'80, &'/'83)&'>*&#'/&', -(*\$%&)&1)-8&#3&#3'/&8'1)OJ&38""21/'\$%""#3' 1/%8&%)8'1""084'</p>

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6"@'. '*	9A1\$"-B. '*.%("2"u'. '*2), ""'. %/"'. *c. *++D*0&%\$%E\$=c. *

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>.8&89.1-(6! .87(-8&7., 8&;(6! 4A]A5@ A;! 9, : <-(8/! &366.! 38! 9(-7&.8! 8, : K-(! /B.: <,-7&876!
 K&.;(3-6! /(!>, 8/6! ?3.! 6, 87! 7, 36! .: <.:?3H6! /&86! ;(! 6(97(3-! -, 37.(-! 8&7., 8&;6! (7! /, 87!
 K(&39, 3<! 6, 87!.87(-C(836! /&86! ;&!-H8, C&7., 8! /(!;&! L, 37(! /(!;&! 6, .(6%, 3-! 38! <-, N(7! 0!
 6, 3-9(6! /(!>.8&89(: (87! : 3;7.<:(66! ;(!6399! 6! /3! <- [7!(7! /(!;&!-H>, -: (!.867.737., 88(;(! (67!
 9, 86./H-&K;((87! -(8>, -9H! 6B.!: (Z.67(! 38(! 9, , -/.8&7., 8! H7-, .7(! (87-(! 9(6! <&-7.(6!
 <-(8&87(66! B38(! /B(87-(! ;:(6! 9* &< (&37&87! ;(6! <-, 9(6636! /(!9, , -/.8&7., 8@m7&87! /, 88H! ;(6!
 />>H-(89(6! 6, 3C(87! 8, 7&K;(6! <, 3C&87!(Z.67(-!(87-(! ;(6! : &8/&76! / (6! Si MG! ;(6! &99, -/6! /(!
 <- [7! / (6! <-, N(766! ;(6! -I ' ;(6! <(-7.8(87(6! / (6! &66&7., 8! / (!: &-9*H!(7! /B&37-(6! 9, 86./H-&7., 86!
 (89, -(6! ;&! : 6(! (8! <;&9(! /B38! >, -3: ! / (9, , -/.8&7., 8! u! HC(873(;: (87! /.-' H! <&-! ;&! <&-7.(!
 : &8.>(67&87! ;(! <, 7(87.(! / (!; (C.(-! ;(! <36! : &-?3H! u! ' &-&87.7! 38! : (;: (3-!-H63;7&7! ' ;, K&;! /3!
 <-, N(7! ?3B38(! &<<- , 9* (!>-&' : (87H(!, v! 9* &?3(! <&-7.(!.87(-C.(87! 6H<&-H: (87@

1.6.3 HO)(\$Q\$2' "6*\$4"#0; *30TSU*3%"J\$V"; ?+*\$

!"#\$%&\$%'()*'+",%\$'

J&! -, 37(! 0! <H&' (! X&6, : (8, 1i T(8/&! (7! ;(6! <, 67(6!>-, 87.1-(! 0! ' 3.9*(7! 38.?3(! ?3.! ;3.! 6, 87!
 &66, 9.H6! 6(! 6.73(87! (8! LH<3K;. ?3(! /H: , 9-&7.?3(! /3! +, 8' , !4LM+5! (7! (8! Q&: K.(6J(! <-, N(7! (67!
 &973(;: (87! /&86! 6, 8! 9\9; (! / (!/HC(;, <<(: (876! ;(?3(! !&9, : <-6! ;&! <-H<&-&7., 8! /B38(! H73/ (! / (!
 <-H!>&.6&K.;.7H! 4"E^#1"E^e56! 38(! H73/ (! / (!>&.6&K.;.7H! -(87&K.;.7H! 9, : <;! 7(4"E^e1"E"E5!(7! ;&! ;(H(!
 /(!>, 8/6! 4"E"E5@J&!-H&.:6&7., 8! /3! <-, N(7! / (C-&.7! 9, : : (89(-!(8! &C-.;!"E"^^! 6, 36! -H' .: (! / (!%%!
 &C(9! 9, 89(66., 8! / (!" f! &86! &99, -/H(! &3! 6(97(3-! <-.CH6! &<-! 6! ?3, .! ;&! -, 37(! (7! 6(6! 8>-&67-3973-(6!
 &3Z.;.&-(6!-(C.(8/-, 87! &3Z!' , 3C(-8(: (876! 9, 8' , ;&.6! (7! Y&: K.(8@J(6! H73/ (6! <-H<&-&7., .-(6! /3!
 <-, N(7! , 87! H7H!>.8&89H(6! <&-! ;&! M(C(;, <: (87! S&8F!, >! 2, 37* (-8! =>-.9&! 4MS2=5! 4=7* &-! =/C.6, -\!
 R-, 3<6! "E"E5@ J(! 9, 89(66., 88&.-(! (7! >.8&89(3-! ' &' 8&87! (67! ;(! R-, 3<(! (3-, <H(8! / (!
 /HC(;, <<(: (87! =>-.?3(! 4RWM! =>-.?3(5! ;.;.H! 0! 38! .8C(67.66(3-! *, 8' -, .66! M38&! =6Y>&7! 8C(67: (876!
 4=7* &-! =/C.6, -\! R-, 3<6! -! R-89.O(7@)] T J E T Q q O . 24 O O O . 2416.6583.56cm B T 5 O O O 5851.62.376-1096 T m / T T 9 O 1 T 4 (!) T j

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!
J(!<-, N(7!<-HC, .7!;&I9, 867-397., 8!/B38(!8, 3C(;(!-, 37(!7!/(!<, 67(6!/(!9, 87-c;(!>-, 87&;.(!7!/(!
<H&' (! (87-(!X&6, : (8, ! (8! LM+! (7! i T(8/&! (8! Q&: K.(!4=7*&-! =/C.6, -\! R-, 3<6! "E" E5@! J(6!
<-.89.<&3Z!H;H: (876!/3!<-, N(7!6, 87!_!

.@ ^D"!F: !/(!8, 3C(;(!-, 37(!0!C, .(!38.?3(6!/ /, 87! (8C.-, 8!eg!F: !(8!LM+! (7!Dg!F: !(8!
Q&: K.(!!!

..@ ;&I9, 867-397., 8!/B38!<, 87!0!*&3K&86!/(!j nf!: 17-(6!63-!;&!-.C.I-(!J3&<3;&!!!

...@ ;&! 9, 867-397., 86! /(! 9*&?3(! 9c7H! /3! <, 876! /(! <, 67(6!>-, 87.I-(! 0! ' 3.9*(7! 38.?3(!
9, : <-(8&87!/(6!&-(6!/(!67&7., 88(: (87!(7!/(6!(87-(<c76!!!

.C@ ;&I9, 867-397., 8!/(!' &-(6!/(!<H&' (!/(6!/(3Z!9c7H6!/3!<, 87!'

C@ ;&I9, 867-397., 8!/(! ?3&7-(!<, 67(6!/(!<H&' (!<&-!6&7(;.7(!!(7!

C.@ (8!<-, N(76!;&I9, 867-397., 8!/B38(!-, 37(!/B&99! 6!0!B&H-, <, -7!/(!X&6(8' &@

!"?4'+8@)4'

4^5 J(6! 9, a76! /B.8C(67.66(: (87! 4+=%Wp5! (7! 9, a76! /B(Z<;, .7&7., 8! 4o%Wp5! <-H;.: .8&-(6! /3!
<-, N(7! /(!K&6(!, 87!H7H! (67.: H6! 0!##E!: .;., 86! (7! e#E!: .;., 86! /(! /, ;;&-6! &: H-.9&.86!
-(6<(97.C(: (87@!

4''5 J(6!+=%Wp!(7!o%Wp!<-H;.: .8&-(6!/3!<-, N(7!/(!-, 37(!63/G!, <7., 8!^6!, 87!H7H!(67.: H6!0!fn^!
: .;., 86!h2M!(7!^!EE^!: .;., 86!h2M!-(6<(97.C(: (87@

4j 5 i &.6! 9B(67! ;B, <7., 8! ""?3.! &! H7H! <-.C.;H' .H(G! (7! ;(! 7, 7&! /(! 6(6! +=%Wp! (7! o%Wp! (67! /(!
^!fn^!: .;., 86!h2M@

A@07)O\$/" #4' (%4'BO+O#\$/%4'%#@/+'' ##%2%#\$O7%4'%\$'4''1/07%4''

h8(! HC&;3&7., 8! 9, : <;!7(! / (6! ' &-&87.(6! (8C.-, 88(: (87&;(6! (7! 6, 9.&;(6! (7! 38! <;&8! /(!
-H.867&;&7., 8! / (6! <, <3;&7., 86! 9, 89(-8H(6! , 87! H7H! : (8H6@ w3(;?3(6! <-, K;I : (6! ;.: .7H6! (8!
: &7.I-(!/(!-H.867&;&7., 8!6(!6, 87!<-H6(87H6!/3!9c7H!/(!;&!LM+6!(8!K, -/3-(!/(!;&!J3&<3;&@!

C' A+#\$

J(!<-, N(7!&!/a!-(;C(-! ?3(;?3(6!/H>.6!_!

3%\$0, %, +''*) (4)0%*5&+)1!9, : : (!.;!6B&' .7!/B38!<-, N(7!K.;&7H-&;!4LM+!(7!Q&: K. (56!; (6!9, 89(66., 86!/(!
;&!-, 37(!0!<H&' (!, 87!/a! [7-(!8H', 9.H(6!<, 3-!9*&938!/(6!<&\66!9(!?3.!&!-(7&-/H!;(1/H: &-&' (!/3!
<-, N(7!/(!<-!6!/(!/(3Z!&86@W8!, 37-(6!;&!<-H<&-&7., 8!/(6!H73/(6!/(!&.6&K.;.7H!&!/3-H!;, 8' 7(: <66!
9&-!/(6! .8, 8/&7., 86! /&86!;&! -H' ., 8! 9, 8' , ;&.6(!/(!X&6(8' &! (8!, 87!.87(-/.7! ;B&99! 6! 0! ;BH?3.<(!
/BH73/(!<(8/&87! (8C.-, 8! j 6f! : , .6@ J(6! H73/(6! /(! 9.-93;&7., 8! (7! /B*\-/ , , , ' .(! , 87! /a! [7-(!
: , : (87&8H: (87!.87(--, : <3(6@!

3%*6-78&2)(&)%\$'' 2+, --, +''*)!;(6!<-HC.6., 86!/3!<-, N(7!&C&. (87!;&-' (: (87!6, 361(67.: H!;B.: <&97!/(!
;&!-, 37(!63-!;(6!C.;;&' (6@J, -6?3(!;BHC&;3&7., 8!/B.: <&97!(8C.-, 88(: (87&;!(7!6, 9.&!&!H7H!-H&;.6H(G!
.;!(67!&<&-3! ?3&3! : , .86!j f!>&: .;.(6!;&;&. (87!/(C, -![7-(!-H.867&;H(6!/3!9c7H!/(!;&!LM+@A!6B(67!

! !
!
&;, -6! -HCH;H! 8H9(66&.-(! /BH;&K, -(-! -&<./(: (87! 38! <;&8! /(! -H.867&;&7., 8! /(! <(-6, 88(6!
9, 89(-8H(6@

! *\$O)&+,\$A")(\$/*(*3+/\$

J&!<-H<&-&7., 8!/3!<-, N(7!&!H7H>.8&89H(!<&-!;&!S&8?3(!/(!/HC(;, <<(: (87!/B=>-.?3(!/3!23/(!
?3.!&<<&-7.(87!&3!' , 3C(-8(: (87!63/1&>-.9&.8!(7!&!/(6!.87H-[76!-H' ., 8&3Z!0!/H>(8/-(!&3!
6(.8!/(!;&!+M==@J(6!: (: K-(6!/(!;&!+M=!u!/, 87!38!9(-7&.8!8, : K-(!6, 87!H' &;(: (87!/(6!
<&\6!(8!/HC(;, <<(: (87!6&86!;.77, -&!u!<(3C(87!KH8H>.9.(-!/(6!6(-C.9(6!/(!9(77!K&8?3(@!
J&! 7&->.9&7., 8! -, 37.1-(! 6(! <-H6(87(! 9, : : (! 38! : , \(! /3-&K;(! /(! >.8&89(-! ;(6!
.8>-&67-3973-(6!-, 37.1-(6!(8! =>-.?3(! (7! 38!K, 8! : , \(! /B&77.-(!;(!6(97(3-!<-.CH! /&86!;(!
<&-7(8&-.&7!&3!/HC(;, <<(: (87@!

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1.6.4 W()%*\$%*\$<"#\$\$. ""/6)"X\$

: 3=+/033*; *3(\$A"=0/"?, **(\$30)=*, *, \$, 0+\$#)/\$, *#\$\$. . . \$

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! 03<*##+03#\$ /0)(+Y/*#\$ 20)/\$ 8JZ[\$; +,,+"/%\$ %*\$ \$ %0,, "/#\$ %"3#\$,*\$ <"%/*\$ %*\$,"\$ 30)=* ,*\$,0+\$
2"/"6)"X*33*#)/\$,*#\$. . . !

JB38! / (6! <-.89.<&3Z! , K67&9;(6! -(89, 87-H6! <&-! ;(6! .8C(67.66(3-6! /&86! ;(3-6! <-, N(76! /(!
/HC(; , <<(: (87! / (6! -(66, 3-9(6! 8&73-(; ;(6! /3! %&-&' 3&\! (67! 6, 3C(87! ;B&K6(89(! /(! -, 37(! <, 3-!
&9* (: .8(-!9(6! -(66, 3-9(6! /&86! ;(! -(67(! /3! <&\6!!4] (--(- (6! "E^j 5@J(!: , /! ;(!%%!&!6369.7H! 38!
.87H-[7!9, 86./H-&K;(!9*(Y!;(6!.8C(67.66(3-6!(8! =: H-.?3(!;&7.8(6!(7!6, 8!.87-, /397., 8!&3!%&-&' 3&\!
;(6!&!.89.7H6!0!.8C(67.-! /&86!9(!<&\6@%(3!&<-! 6! ;B&88, 89(! /(!&!8, 3C(; ;(!, .6! ;(6!N, 3-8&3Z! ;, 9&3Z!
, 87! -&<<, -7H! ?3B38(! 6H-.(! /(! -H38., 86! &C&.(87! (3! ;.(3! (87-(! ;(!' , 3C(-8(: (87! (7! <;36.(3-6!
(87-(<-.6(6! (6<&' 8, ;(66!K-H6.;.(88(66!9* ;.(88(6!(7!K, ;.C.(88(6!<, 3-!/.6937(-! / (6!<-, N(76! /3!<&\6@

J(!<-(: .(-!<-, N(7!&!9, 86.67H!(8! ;B&77-.K37., 8! /B38!9, 87-&7! / (19, 867-397., 8! (7! /B(Z<;, .7&7., 8! / (!&!
s!L, 37(!"!

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!
N, 3-6!<&-!7-&.8!9, 87-(!8C.-, 8!"j M, 3-6!<&-!K&7(&3 @=C(9!&!8, 3C(;;(!;' 8(!>(--, C.&-(6!&!/.67&89(!
0!<&-9, 3-.-!<, 3-!7-&86<, -7(-!/(!: &-9*&8/.6(!/B=6.(!9(87-&!(C(-6!(6!<, -76!/3!' , >(!%(-6.?3(!&!
H7H! -H/3.7(! /U(8C.-, 8! gDE! F: @ J(! <-, N(7! &! H' &:((87! 9-HH! /(! (: <;, .6! /.- (976! 6, 37.(87! ;(!

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!
;, 8' 3(3-!7, 7&(!/(!j"!F: !9, : <, -7&87!j e! 67&7., 866! (7! KH8H>.9.(! /B38! .8C(67.66(: (87!/(!n#f!
: ;;;, 86!/(!/ , ;;&-6!&: H-.9&.86!4+ (87-(!>, -!%3K;9!A: <&97!4+%A56!"E^g5@J(!6\67I: (!/(!: H7-, !;H' (-!
/B=//.61

!
!
!*\$O)&+,\$A'')(\$/*(*3+/\$`\$*3#+63*; *3(#\$-\$

+ , : : (!<, 3-!;!<- , N(7!/3!8, 3C(&3!<, 87!63-!;!J.: <, <, G!;!<- , N(7!6B(67!-HCH;H!>.8&8q&K;!<&-9(!?3B.;!(Z.67&.7!38!K(6, .8!HC./ (87G!38(!-H(;(!/(: &8/(@=//.6

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! 1.6.9 R/Y=*\$' ()%*\$%*\$<"#-\$! *3(/,"\$:"#(*3\$KA/<"3\$H"+,U"X#J\$,*#<D*; +3#%*\$A*/%)<*3(/*\$ *#(T"A/<"3\$\$

W8!/H9(: K-(!^eee!;(19, 86, -7.3: !+(87-&!W&67(-8! =>-.9&8!L&.;T&\6!4+W=L6!9*(: .86!/(!>(-!/3!
9(87-(!671&>-.9&.85!&!-(: <, -7H!(6!/-, .76!/B(Z<,, .7&7., 8!/3!-H6(&3!>(--, C.&-(!/3!i &T.!0!&!63.7(!
/B38! &<<(! /B, >>- (6! ;&89H! /&86! ;&! <-(66(! ;, 9&(! (?! .87(-8&7., 8&(! <&-! ;&! +, : : .66., 8! /(!
<-.C&7.6&7., 8!/3!i &T.#!

A;! 6B&' .66&.7! /B38! <-, N(?!%%%) /(! <-.C&7.6&7., 8!9, : <;!7(! / (6!9*(: .86!/(!>(-!/3!i &T.! , v! ;(!
' , 3C(-8(: (87!, 97-, \&.7!0!&!9, : <&' 8.(138(19, 89(66., 8! / (!"E!&86!<, 3-!-&9*(7(-!7, 36!;(6!&97.>6!
: , K.;(-6!(?! (Z<,, .7(-!(!-H6(&3!>(--, C.&-(!40.: K&KT(!W9, 8, : .9!%, ;9\!=8&!\6.6!&8!/L(6(&-9*!
h8.7! 4QW%=Lh56! "E^g5@ J&! 9, 89(66., 8! H7&.7! -(8, 3C(;&K;! 0! 9, 8/.7., 8! ?3(! ;(6! <&-7.(6! 6, .(87!
6&7.6>8.7(6! / (6! <-, '-!6! -H&:6H6! <(8/&87! ;(6! "E! <-(: .!-(6! &88H(6@ JB(86(: K;(! / (6! K.(86!
.: : , K.;(-6!7(;6!?3(! ;(6! '&-(6!(?!Kb7.: (876!;(6!C, .(6! / (!9*(: .8! / (!>(-!(?! ;(6! : &.6, 86!8B, 87!<&6!
H7H! C(8/36! /&86! 38! <-(: .(-!7(: <66! : &.6! ;(! 9, 89(66., 88&-(! H7&.7! &37, -.6H! 0! ;(6! 37.;6(-!
: , \ (88&87!;, \(-@!

A, \$ 6 B & ! 8 ; 8 3 (1) 2 2 . 6 1 f 2 (K) O D 4 5 j 0 2 7 5 1 0 4 6 3 4 7 (#) 8 B 4 (f 6) - 5 1 D 1 4 0 8 1 5 % 4 1 E 8 3 5 8 0 5 H 5 6 7 0 6 8 5 (7 1 5

! ! !

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!
-(87&K;(@J(!7, 37G!38(!>, .6!(89, -(G!(67!/(!-&77&9* (-!;!<-, N(7!0!38(!6, 3-9(!6369(<7.K;(!/(!
' H8H-(-!38!K(6, .8!/(!7-&86<, -7@!

1.7 56*, 717*\$

!

! !
^"@J(.';&8/G!k@dL, K(-76G!=@4"EE#5!R-./;:8(6!O, 7(!8 !^D@dS&)8, ' D4&)(&)O%\$O, %, +"'')(&2
0%*5&+2)&')U#%"D4&):-&2)U#%"9, "" 2)9<&%9<&' +)K)O, --"&%)4')#, 9+&4%)9%+"D4&)"8"+, ' +)-&2
" B&2+"22&8&' +2)(, ' 2)-&2)" #%, 2+%49+4%&2)*77<6_--<<.&>@, -' -/, 93: (876-j E^"-/, T8;, &/)!

>E? W8' .8((-.'8' !O(T6G!2, 37*!=>-.9&!4"E"E5@dS&)9<&8"")K)O, %9*4%":)-,). YZM! I>[], 4%,)4')
"80, 9+)(4%, 6-&)24%-&)2&9+&4%)(&2)+%, ' 20*%+2)

^n@]&-:&: G!%!4"EEf5@dS/\$B, -4, +"'')(&2)O, %+&' , %, +2)046-"9!0%"B\$)&')U#%"D4&
*77<6_--TTT@, (9/@, -' -8C(67: (87-8C(67: (87>, -/(C(;, <: (87-j nDg##"n@/>!!

^f@] (--(-(@4"E^j 5@d2, 3-9(!!*77<6_--TTT@(--(-(@, : -(8-8(T6~<&-&' 3&\16((F617, 1<;3' 1
.8>-&67-3973-(1' &<1T.7*1<<<1;&T-!

^g@].8&89(G!J@d4"E"E5@dS&)3, %, =4, R)O%\$O, %&)9" D)=%, ' (2)O%*5&+2)(/" #%, 2+%49+4%&2?!2, 3-9(!!
*77<6_--TTT@&7.8>.8&89(@, : -/&.;\1K-.(>6-"E"E-e-^f~(Z9;36.C(1<&-&' 3&\1<-(<&-.'8' 1
>.C(1: &N, -1.8>-&67-3973-(1<-, N(976!

^#@];\CKN(-' G!S@d4"EEf5@d3*-"D4&2)&+O-, ' "#9, +"'')(&2)=%, ' (2)O%*5&+2)(/" #%, 2+%49+4%&2):
0%*6-78&2)9, 42&2T)%&87(&2)\(*948&' +)(&)+%, B, "-)(&-), V, ' D4&)8*' (" , -&)24%-),)

!

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! "f@i .8.67l -(l/(6!7-&86<, -76G!Q&: K.(!4"E"E5@MBO, 9+2)(&-,). YZM! l>[!

"g@i 9X.86(\!4"E"E5G!LH6, 3/-(!:(!<&-&/, Z(!/(6!.8>-&67-3973-(6!(8!>-.?3(G!i 9X.86(\!€!
+, : <&8\@*77<6 --TTT@ 9F.86(\@, : -.8/367-. (6-9&<.7&;1<-, N(9761&8/1
.8>-&67-3973-(~, 3-1.86.' *76-6, ;C.8' 1&>-.9&61.8>-&67-3973-(1<&-&/, Z!!

"#@O-' &8.6&7., 8!/(!9, , <H-&7., 8!(7!/(!/HC(;, <<(: (87!H9, 8, : .?3(6!4O+MW5!-!+(87-(!
&>-.9&.8!<, 3-!;&!7-&86>, -: &7., 8!H9, 8, : .?3(l4+=W)5!4"E"E5@! &2)" #%, 2+%49+4%&2)(&)

!

!

!

!

, 42+%, -&)9<*2"2?)*77<_~: (>: .@, -' ~T<19, 87(87-3<;, &/6~"E^D~^"-27&7361&8/1
<(->, -: &89(1, >1%%%61.81W&67(-81&8/12, 37* (-81=>-.9&1i &.81L (<, -7@/>)!</u>

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