

**AMENDMENTS TO THE MANUAL ON MARINE METEOROLOGICAL SERVICES AND
GUIDE TO MARINE METEOROLOGICAL SERVICES
MINIMUM QUALITY CONTROL STANDARD (MQCS)
MQCS-6a (Version 6a, Draft 22 June 2010)**

Note: highlighting marks changes with respect to MQCS-5

highlighting marks changes with respect to MQCS-6

NOTE: See the specifications for setting quality control Indicators Q_1 to Q_{29} at the end of this Annex

Δ = space (ASCII 32)

<u>Element</u>	<u>Error</u>	<u>Action</u>
1	$i_T \neq 3 - 5, \Delta$	Correct manually otherwise 3
2	AAAA \neq valid year	Correct manually otherwise reject
3	MM \neq 01 - 12	Correct manually otherwise reject
4	YY \neq valid day of month	Correct manually otherwise reject
5	GG \neq 00 - 23	Correct manually otherwise reject
6	$Q_c \neq 1, 3, 5, 7$ $Q_c = \Delta$	Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$ $Q_{20} = 2$
7	$L_a L_a L_a \neq 000-900$ $L_a L_a L_a = \Delta\Delta\Delta$	Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$ $Q_{20} = 2$
8	$L_o L_o L_o L_o \neq 0000-1800$ $L_o L_o L_o L_o = \Delta\Delta\Delta\Delta$ $L_a L_a L_a = L_o L_o L_o L_o = \Delta\Delta\Delta(\Delta)$	Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$ $Q_{20} = 2$ Correct manually otherwise reject
<u>Time sequence checks</u>		
	Change in latitude $> 0.7^\circ/\text{hr}$	Correct manually otherwise $Q_{20} = 3$
	Change in longitude $> 0.7^\circ/\text{hr}$ when lat. 00-39.9	Correct manually otherwise $Q_{20} = 3$
	Change in longitude $> 1.0^\circ/\text{hr}$ when lat. 40-49.9	Correct manually otherwise $Q_{20} = 3$
	Change in longitude $> 1.4^\circ/\text{hr}$ when lat. 50-59.9	Correct manually otherwise $Q_{20} = 3$
	Change in longitude $> 2.0^\circ/\text{hr}$ when lat. 60-69.9	Correct manually otherwise $Q_{20} = 3$
	Change in longitude $> 2.7^\circ/\text{hr}$ when lat. 70-79.9	Correct manually otherwise $Q_{20} = 3$
9	Indicator $\neq 0-3, \Delta$	Correct manually, otherwise Δ
10	$h \neq 0-9$ $h = \Delta$	Correct manually and $Q_1 = 5$, otherwise $Q_1 = 4$ $Q_1 = 9$
11	VV $\neq 90-99$ VV = $\Delta\Delta$	Correct manually and $Q_2 = 5$, otherwise $Q_2 = 4$ $Q_2 = 9$
12	N $\neq 0-9, \Delta$ $N < N_h$	Correct manually and $Q_3 = 5$, otherwise $Q_3 = 4$ Correct manually and $Q_3 = 5$, otherwise $Q_3 = 2$
13	dd $\neq 00-36, 99$ dd = $\Delta\Delta$ dd versus ff dd = 00, ff \neq 00 dd \neq 00, ff = 00	Correct manually and $Q_4 = 5$, otherwise $Q_4 = 4$ $Q_4 = 9$ Correct manually and Q_4 or $Q_5 = 5$ otherwise $Q_4 = Q_5 = 2$ Correct manually and Q_4 or $Q_5 = 5$ otherwise $Q_4 = Q_5 = 2$
14	$i_w \neq 0, 1, 3, 4$	Correct manually, otherwise $Q_5 = Q_{29} = 4$
15	ff > 80 knots ff = $\Delta\Delta$	Correct manually and $Q_5 = 5$, otherwise $Q_5 = 3$ $Q_5 = 9$
16	$s_n \neq 0, 1$	Correct manually, otherwise $Q_6 = 4$
17	TTT = $\Delta\Delta\Delta$	$Q_6 = 9$

<u>Element</u>	<u>Error</u>	<u>Action</u>
	If -25 > TTT > 40 then when Lat. < 45.0 TTT < -25 TTT > 40 when Lat. ≥ 45.0 TTT < -25 TTT > 40	Q ₆ = 4 Q ₆ = 3 Q ₆ = 3 Q ₆ = 4
<u>TTT versus humidity parameters</u>		
	TTT < WB (wet bulb) TTT < DP (dew point)	Correct manually and Q ₆ = 5, otherwise Q ₆ =Q ₁₉ = 2 Correct manually and Q ₆ = Q ₇ = 5, otherwise Q ₆ = Q ₇ = 2
18	s _t ≠ 0, 1, 2, 5, 6, 7	Correct manually, otherwise Q ₇ = 4
19	DP > WB DP > TTT WB = DP = ΔΔΔ	Correct manually and Q ₇ = 5, otherwise Q ₇ =Q ₁₉ = 2 Correct manually and Q ₇ = 5, otherwise Q ₇ = Q ₆ = 2 Q ₇ =Q ₁₉ = 9
20	930 > PPPP > 1050 hPa 870 > PPPP > 1070 hPa PPPP = ΔΔΔΔ	Correct manually and Q ₈ = 5, otherwise Q ₈ = 3 Correct manually and Q ₈ = 5, otherwise Q ₈ = 4 Q ₈ = 9
21	ww = 22-24, 26, 36-39, 48, 49, 56, 57, 66-79, 83-88 93-94 and latitude < 20° if i _x = 7: w _a w _a = 24 - 25, 35, 47-48, 54-56, 64-68, 70-78, 85-87 and latitude < 20°	Correct manually and Q ₉ = 5, otherwise Q ₉ = 4 Correct manually and Q ₉ = 5, otherwise Q ₉ = 3 Correct manually and Q ₉ = 5, otherwise Q ₉ = 4
22, 23	W ₁ or W ₂ = 7 and latitude < 20° W ₁ < W ₂ W ₁ = W ₂ = ww = ΔΔΔΔ	Correct manually and Q ₉ = 5, otherwise Q ₉ = 4 Correct manually and Q ₉ = 5, otherwise Q ₉ = 2 Q ₉ = 9
24-27	N = 0, and N _h C _L C _M C _H ≠ 0000 N = Δ, and N _h C _L C _M C _H ≠ ΔΔΔΔ N = 9, and not (N _h = 9 and C _L C _M C _H ≠ ΔΔΔ N = Δ, and N _h C _L C _M C _H = ΔΔΔΔ	Correct manually and Q ₃ = 5, otherwise Q ₃ = 2 Correct manually and Q ₃ = 5, otherwise Q ₃ = 2 Correct manually and Q ₃ = 5, otherwise Q ₃ = 2 Q ₃ = 9
28	s _n ≠ 0, 1	Correct manually otherwise Q ₁₀ = 4
29	T _w T _w T _w = ΔΔΔ if -2.0 > T _w T _w T _w > 37.0 then when Lat. < 45.0 T _w T _w T _w < -2.0 T _w T _w T _w > 37.0 when Lat. ≥ 45.0 T _w T _w T _w < -2.0 T _w T _w T _w > 37.0	Q ₁₀ = 9 Control manually and Q ₁₀ = 5, otherwise Q ₁₀ = 4 Control manually and Q ₁₀ = 5, otherwise Q ₁₀ = 3 Control manually and Q ₁₀ = 5, otherwise Q ₁₀ = 3 Control manually and Q ₁₀ = 5, otherwise Q ₁₀ = 4
30	Indicator ≠ 0-7, Δ	Correct manually, otherwise Δ
31	Indicator ≠ 0-9, Δ	Correct manually, otherwise Δ
32	20 < P _w P _w < 30 P _w P _w ≥ 30 and ≠ 99 P _w P _w = ΔΔ	Q ₁₁ = 3 Q ₁₁ = 4 Q ₁₁ = 9
33	35 < H _w H _w < 50 H _w H _w ≥ 50 H _w H _w = ΔΔ	Q ₁₂ = 3 Q ₁₂ = 4 Q ₁₂ = 9
34	d _{w1} d _{w1} ≠ 00-36, 99 swell ₁ = swell ₂ = Δ	Correct manually and Q ₁₃ = 5, otherwise Q ₁₃ = 4 Q ₁₃ = 9
35	25 < P _{w1} P _{w1} < 30 P _{w1} P _{w1} ≥ 30 and ≠ 99	Q ₁₃ = 3 Q ₁₃ = 4
36	35 < H _{w1} H _{w1} < 50 H _{w1} H _{w1} ≥ 50	Q ₁₃ = 3 Q ₁₃ = 4
37	I _s ≠ 1-5, Δ	Correct manually, otherwise Δ

<u>Element</u>	<u>Error</u>	<u>Action</u>
38	$E_s E_s \neq 00-99, \Delta\Delta$	Correct manually, otherwise $\Delta\Delta$
39	$R_s \neq 0-4, \Delta$	Correct manually, otherwise Δ
40	Source $\neq 0-6$	Correct manually, otherwise Δ
41	Platform $\neq 0-9$	Correct manually, otherwise Δ
42	No call sign	Insert manually, mandatory entry
43	No country code	Insert manually
44	No Quality Control	
45	$Q \neq 0-6, 9$	Correct manually, otherwise Δ
46	$i_x \neq 1-7$	Correct manually, otherwise Δ
47	$i_R = 0-2$ and $RRR = 000, \Delta\Delta\Delta$	Correct manually, otherwise $Q_{14} = 4$
	$i_R = 3$ and $RRR \neq \Delta\Delta\Delta$	Correct manually, otherwise $Q_{14} = 2$
	$i_R = 4$ and $RRR \neq \Delta\Delta\Delta$	Correct manually, otherwise $Q_{14} = 2$
	$i_R \neq 0-4$	Correct manually, otherwise $Q_{14} = 4$
48	$RRR \neq 001-999$ and $iR = 1, 2$	Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 2$
49	$t_R \neq 0-9, \Delta$	Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 4$
50	$s_w \neq 0, 1, 2, 5, 6, 7$	Correct manually, otherwise $Q_{19} = 4$
51	$WB < DP$	Correct manually and $Q_{19} = 5$, otherwise $Q_{19}=Q_7=2$
	$WB = \Delta\Delta\Delta$	$Q_{19} = 9$
	$WB > TTT$	Correct manually and $Q_{19} = 5$, otherwise $Q_{19}=Q_6=2$
52	$a \neq 0-8$	Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$
	$a = 4$ and $ppp \neq 000$	Correct manually and Q_{15} or $Q_{16} = 5$, otherwise $Q_{15}=Q_{16}=2$
	$a = 1,2,3,6,7,8$ and $ppp=000$	Correct manually and Q_{15} or $Q_{16} = 5$, otherwise $Q_{15}=Q_{16} = 2$
	$a = \Delta$	$Q_{15} = 9$
53	$250 \geq ppp > 150$	Correct manually and $Q_{16} = 5$, otherwise $Q_{16} = 3$
	$ppp > 250$	Correct manually and $Q_{16} = 5$ otherwise $Q_{16} = 4$
	$ppp = \Delta\Delta\Delta$	$Q_{16} = 9$
54	$D_s \neq 0-9$	Correct manually and $Q_{17} = 5$, otherwise $Q_{17} = 4$
	$D_s = \Delta$	$Q_{17} = 9$
55	$V_s \neq 0-9$	Correct manually and $Q_{18} = 5$, otherwise $Q_{18} = 4$
	$V_s = \Delta$	$Q_{18} = 9$
56	$d_{w2} d_{w2} \neq 00-36, 99, \Delta\Delta$	Correct manually and $Q_{13} = 5$, otherwise $Q_{13} = 4$
57	$25 < P_{w2} P_{w2} < 30$	$Q_{13} = 3$
	$P_{w2} P_{w2} \geq 30$ and $\neq 99$	$Q_{13} = 4$
58	$35 < H_{w2} H_{w2} < 50$	$Q_{13} = 3$
	$H_{w2} H_{w2} \geq 50$	$Q_{13} = 4$
59	$c_i \neq 0-9, \Delta$	Correct manually, otherwise Δ
60	$S_i \neq 0-9, \Delta$	Correct manually, otherwise Δ
61	$b_i \neq 0-9, \Delta$	Correct manually, otherwise Δ
62	$D_i \neq 0-9, \Delta$	Correct manually, otherwise Δ
63	$z_i \neq 0-9, \Delta$	Correct manually, otherwise Δ
64	version $\neq 0-9, A-C, \Delta$	Correct manually, otherwise Δ
65	version $\neq 0-4, \Delta$	Correct manually, otherwise Δ
86	Minimum Quality Control Standard (MQCS) version identification	1= MQCS-I (Original version, Feb. 1989) CMM-X 2= MQCS-II (Version 2, March 1997) CMM-XII 3= MQCS-III (Version 3, April 2000) SGMC-VIII 4= MQCS-IV (Version 4, June 2001) JCOMM-I 5= MQCS-V (Version 5, July 2004) ETMC-I 6 = MQCS-VI (this version, to be agreed)
87	$HDG \neq 001-360$	Correct manually and $Q_{22} = 5$, otherwise $Q_{22} = 4$
	$HDG = \Delta\Delta\Delta$	$Q_{22} = 9$
88	$COG \neq 000-360$	Correct manually and $Q_{23} = 5$, otherwise $Q_{23} = 4$
	$COG = \Delta\Delta\Delta$	$Q_{23} = 9$
89	$SOG \neq 00 - 99$	Correct manually and $Q_{24} = 5$, otherwise $Q_{24} = 4$
	$SOG = \Delta\Delta$	$Q_{24} = 9$

<u>Element</u>	<u>Error</u>	<u>Action</u>
90	SOG > 33	Correct manually and Q ₂₄ = 5, otherwise Q ₂₄ = 3
	SLL ≠ 00-99	Correct manually and Q ₂₅ = 5, otherwise Q ₂₅ = 4
	SLL = ΔΔ	Q ₂₅ = 9
	SLL > 40	Correct manually and Q ₂₅ = 5, otherwise Q ₂₅ = 3
91	s _L ≠ 0,1	Correct manually and Q ₂₇ = 5, otherwise Q ₂₇ = 4
92	hh ≠ 00 – 99	Correct manually and Q ₂₇ = 5, otherwise Q ₂₇ = 4
	hh = ΔΔ	Q ₂₇ = 9
	hh >= 13	Correct manually and Q ₂₇ = 5, otherwise Q ₂₇ = 3
	hh < -01	Correct manually and Q ₂₇ = 5, otherwise Q ₂₇ = 4
93	RWD ≠ 000 - 360, 999	Correct manually and Q ₂₈ = 5, otherwise Q ₂₈ = 4
	RWD = ΔΔΔ	Q ₂₈ = 9
94	RWS ≠ 000 - 999	Correct manually and Q ₂₉ = 5, otherwise Q ₂₉ = 4
	RWS = ΔΔΔ	Q ₂₈ = 9
	RWS > 110 kts	Correct manually and Q ₂₉ = 5, otherwise Q ₂₉ = 3
<u>RWD versus RWS</u>		
	RWD = 000, RWS ≠ 000	Correct manually and Q ₂₈ or Q ₂₉ = 5, otherwise Q ₂₈ = Q ₂₉ = 2
	RWD ≠ 000, RWS = 000	Correct manually and Q ₂₈ or Q ₂₉ = 5, otherwise Q ₂₈ = Q ₂₉ = 2
<u>Specifications for setting quality control Indicators Q₁ to Q₂₉</u>		
0	No quality control (QC) has been performed on this element	
1	QC has been performed; element appears to be correct	
2	QC has been performed; element appears to be inconsistent with other elements	
3	QC has been performed; element appears to be doubtful	
4	QC has been performed; element appears to be erroneous	
5	The value has been changed as a result of QC	
6	The original flag is set "1" (correct) and the value will be classified by MQCS as inconsistent, dubious, erroneous or missing	
7	The original flag is set "5" (amended) and the value will be classified by MQCS as inconsistent, dubious, erroneous or missing	
8	Reserve	
9	The value of the element is missing	