

Annex 2 to Recommendation 9 (JCOMM-III)

AMENDMENTS TO THE *MANUAL ON MARINE METEOROLOGICAL SERVICES* (WMO-No. 558) AND THE *GUIDE TO MARINE METEOROLOGICAL SERVICES* (WMO-No. 471)

MINIMUM QUALITY CONTROL STANDARD (MQCS) MQCS-VI (Version 6)

Notes:

- (a) **Highlighting** marks changes with respect to MQCS-V.
 (b) See the specifications for setting quality control Indicators Q_1 to Q_{29} at the end of this annex.
 (c) Δ = space (ASCII 32).

<i>Element</i>	<i>Error</i>	<i>Action</i>
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><i>Time sequence checks</i></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 $\neq 90-99$	Correct manually and $Q_2 = 5$, otherwise $Q_2 = 4$

<i>Element</i>	<i>Error</i>	<i>Action</i>
	VV = $\Delta\Delta$	Q ₂ = 9
12	N \neq 0–9, Δ	Correct manually and Q ₃ = 5, otherwise Q ₃ = 4
	N < N _n	Correct manually and Q ₃ = 5, otherwise Q ₃ = 2
13	dd \neq 00–36, 99	Correct manually and Q ₄ = 5, otherwise Q ₄ = 4
	dd = $\Delta\Delta$	Q ₄ = 9
	dd versus ff	
	dd = 00, ff \neq 00	Correct manually and Q ₄ or Q ₅ = 5 otherwise Q ₄ = Q ₅ = 2
	dd \neq 00, ff = 00	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	Correct manually and Q ₅ = 5, otherwise Q ₅ = 3
	ff = $\Delta\Delta$	Q ₅ = 9
16	s _n \neq 0, 1	Correct manually, otherwise Q ₆ = 4
17	TTT = $\Delta\Delta\Delta$	Q ₆ = 9
	If $-25 > \text{TTT} > 40$ then	
	when Lat. < 45.0	
	TTT < -25	Q ₆ = 4
	TTT > 40	Q ₆ = 3
	when Lat. \geq 45.0	
	TTT < -25	Q ₆ = 3
	TTT > 40	Q ₆ = 4
<u>TTT versus humidity parameters</u>		
	TTT < WB (wet bulb)	Correct manually and Q ₆ = 5, otherwise Q ₆ =Q ₁₉ = 2
	TTT < DP (dew point)	Correct manually and Q ₆ = Q ₇ = 5, otherwise Q ₆ = Q ₇ = 2
18	s _t \neq 0, 1, 2, 5, 6, 7	Correct manually, otherwise Q ₇ = 4
19	DP > WB	Correct manually and Q ₇ = 5, otherwise Q ₇ =Q ₁₉ = 2
	DP > TTT	Correct manually and Q ₇ = 5, otherwise Q ₇ = Q ₆ = 2
	WB = DP = $\Delta\Delta\Delta$	Q ₇ = Q ₁₉ = 9
20	930 > PPPP > 1050 hPa	Correct manually and Q ₈ = 5, otherwise Q ₈ = 3
	870 > PPPP > 1070 hPa	Correct manually and Q ₈ = 5, otherwise Q ₈ = 4
	PPPP = $\Delta\Delta\Delta\Delta$	Q ₈ = 9
21	ww = 22–24, 26, 36–39, 48, 49, 56, 57, 66–79, 83–88	Correct manually and Q ₉ = 5, otherwise Q ₉ = 4
	93–94 and latitude < 20°	Correct manually and Q ₉ = 5, otherwise Q ₉ = 3

<i>Element</i>	<i>Error</i>	<i>Action</i>
	if $i_x = 7$:	
	$w_a w_a = 24-25, 35, 47-48, 54-56, 64-68, 70-78, 85-87$	Correct manually and $Q_9 = 5$, otherwise $Q_9 = 4$
	and latitude $< 20^\circ$	
22, 23	W_1 or $W_2 = 7$ and latitude $< 20^\circ$	Correct manually and $Q_9 = 5$, otherwise $Q_9 = 4$
	$W_1 < W_2$	Correct manually and $Q_9 = 5$, otherwise $Q_9 = 2$
	$W_1 = W_2 = ww = \Delta\Delta\Delta\Delta$	$Q_9 = 9$
24-27	$N = 0$, and $N_h C_L C_M C_H \neq 0000$	Correct manually and $Q_3 = 5$, otherwise $Q_3 = 2$
	$N = \Delta$, and $N_h C_L C_M C_H \neq \Delta\Delta\Delta\Delta$	Correct manually and $Q_3 = 5$, otherwise $Q_3 = 2$
	$N = 9$, and not ($N_h = 9$ and $C_L C_M C_H \neq \Delta\Delta\Delta$)	Correct manually and $Q_3 = 5$, otherwise $Q_3 = 2$
	$N = \Delta$, and $N_h C_L C_M C_H = \Delta\Delta\Delta\Delta$	$Q_3 = 9$
28	$s_n \neq 0, 1$	Correct manually otherwise $Q_{10} = 4$
29	$T_w T_w T_w = \Delta\Delta\Delta$	$Q_{10} = 9$
	if $-2.0 > T_w T_w T_w > 37.0$ then	
	when Lat. < 45.0	
	$T_w T_w T_w < -2.0$	Control manually and $Q_{10} = 5$, otherwise $Q_{10} = 4$
	$T_w T_w T_w > 37.0$	Control manually and $Q_{10} = 5$, otherwise $Q_{10} = 3$
	when Lat. ≥ 45.0	
	$T_w T_w T_w < -2.0$	Control manually and $Q_{10} = 5$, otherwise $Q_{10} = 3$
	$T_w T_w T_w > 37.0$	Control manually and $Q_{10} = 5$, otherwise $Q_{10} = 4$
30	Indicator $\neq 0-7, \Delta$	Correct manually, otherwise Δ
31	Indicator $\neq 0-9, \Delta$	Correct manually, otherwise Δ
32	$20 < P_w P_w < 30$	$Q_{11} = 3$
	$P_w P_w \geq 30$ and $\neq 99$	$Q_{11} = 4$
	$P_w P_w = \Delta\Delta$	$Q_{11} = 9$
33	$35 < H_w H_w < 50$	$Q_{12} = 3$
	$H_w H_w \geq 50$	$Q_{12} = 4$
	$H_w H_w = \Delta\Delta$	$Q_{12} = 9$
34	$d_{w1} d_{w1} \neq 00-36, 99$	Correct manually and $Q_{13} = 5$, otherwise $Q_{13} = 4$
	$swell_1 = swell_2 = \Delta$	$Q_{13} = 9$
35	$25 < P_{w1} P_{w1} < 30$	$Q_{13} = 3$
	$P_{w1} P_{w1} \geq 30$ and $\neq 99$	$Q_{13} = 4$
36	$35 < H_{w1} H_{w1} < 50$	$Q_{13} = 3$
	$H_{w1} H_{w1} \geq 50$	$Q_{13} = 4$
37	$I_s \neq 1-5, \Delta$	Correct manually, otherwise Δ
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

<i>Element</i>	<i>Error</i>	<i>Action</i>
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 $i_R =$ 1, 2	Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 2$
49	$t_R \neq$ 0–9, Δ	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, Δ	Correct manually, otherwise Δ
60	$S_i \neq$ 0–9, Δ	Correct manually, otherwise Δ
61	$b_i \neq$ 0–9, Δ	Correct manually, otherwise Δ
62	$D_i \neq$ 0–9, Δ	Correct manually, otherwise Δ
63	$z_i \neq$ 0–9, Δ	Correct manually, otherwise Δ
64	version \neq 0–9, A, Δ	Correct manually, otherwise Δ

<i>Element</i>	<i>Error</i>	<i>Action</i>
65	version ≠ 0–4, Δ	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 ≠ 000–360 HDG = ΔΔΔ	Correct manually and Q ₂₂ = 5, otherwise Q ₂₂ = 4 Q ₂₂ = 9
88	COG ≠ 000–360 COG = ΔΔΔ	Correct manually and Q ₂₃ = 5, otherwise Q ₂₃ = 4 Q ₂₃ = 9
89	SOG ≠ 00–99 SOG = ΔΔ SOG > 33	Correct manually and Q ₂₄ = 5, otherwise Q ₂₄ = 4 Q ₂₄ = 9 Correct manually and Q ₂₄ = 5, otherwise Q ₂₄ = 3
90	SLL ≠ 00–99 SLL = ΔΔ SLL > 40	Correct manually and Q ₂₅ = 5, otherwise Q ₂₅ = 4 Q ₂₅ = 9 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 hh = ΔΔ hh >= 13 hh < -01	Correct manually and Q ₂₇ = 5, otherwise Q ₂₇ = 4 Q ₂₇ = 9 Correct manually and Q ₂₇ = 5, otherwise Q ₂₇ = 3 Correct manually and Q ₂₇ = 5, otherwise Q ₂₇ = 4
93	RWD ≠ 000 – 360, 999 RWD = ΔΔΔ	Correct manually and Q ₂₈ = 5, otherwise Q ₂₈ = 4 Q ₂₈ = 9
94	RWS ≠ 000–999 RWS = ΔΔΔ RWS > 110 kts	Correct manually and Q ₂₉ = 5, otherwise Q ₂₉ = 4 Q ₂₈ = 9 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	

<i>Element</i>	<i>Error</i>	<i>Action</i>
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	