Recommendation 9 (JCOMM-III)

MODIFICATIONS TO THE INTERNATIONAL MARITIME METEOROLOGICAL TAPE FORMAT AND MINIMUM QUALITY CONTROL STANDARD

THE JOINT WMO/IOC TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY.

Noting:

- (1) The Manual on Marine Meteorological Services (WMO-No. 558), Volume I, Appendix I.13 Layout for the International Maritime Meteorological Tape, and Appendix I.15 Minimum Quality Control Standards,
- (2) The final report of the second session of the JCOMM Expert Team on Marine Climatology (JCOMM/MR-No. 50),

Considering:

- (1) That the International Maritime Meteorological Tape (IMMT) format is the primary format for the exchange of marine climatological data, for both the Marine Climatological Summaries Scheme (MCSS) and the VOSClim,
- (2) The importance of the Minimum Quality Control Standard (MQCS) to the quality of the data in the MCSS archives.
- (3) The importance to the Global Collecting Centres of keeping both the IMMT and the MQCS up to date,

Recognizing the need for including information on the source of observations (electronic or paper logbook) in IMMT; as well as the need for taking account in MQCS of increased deck cargo height of modern cargo vessels,

Recommends:

- (1) That the amendments to the *Manual on Marine Meteorological Services* (WMO-No. 558) and the *Guide to Marine Meteorological Services* (WMO-No. 471), as detailed in Annexes 1 and 2 to this recommendation be approved, and included in the appropriate appendices in the Manual and Guide;
- (2) That the new version (IMMT-IV) of the IMMT format be implemented generally for all data collected as from 1 January 2011;
- (3) That the new version of the Minimum Quality Control Standard (MQCS-VI) be also implemented generally for all data collected as from 1 January 2011;

Requests the Expert Team on Marine Climatology to continue to review the implementation and value of the revised format and quality control standard, to provide technical assistance to the Members/Member States concerned as required and to propose further amendments to the format and standard as necessary;

Requests the Secretary-General of WMO to provide appropriate technical advisory assistance to Members/Member States concerned, as required, in the implementation of the revised format and standard.

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) $\Delta = \text{space (ASCII 32)}.$

Element Error			
2 AAAA valid year 3 MM $\sim 01 \cdot 12$ 4 YY valid day of month 5 GG $\sim 00 \cdot 23$ 6 Qc $\sim 1.3, 5.7$ Qc $\sim 1.3, 5.7$ Correct manually otherwise reject Correct manually otherwise reject Correct manually otherwise reject Correct manually otherwise reject Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 7 LibLia ~ 000.900 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 8 LibLia ~ 000.900 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 8 LibLia ~ 000.900 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2	Element	Error	Action
2 AAAA valid year 3 MM $\sim 01 \cdot 12$ 4 YY valid day of month 5 GG $\sim 00 \cdot 23$ 6 Qc $\sim 1.3, 5.7$ Qc $\sim 1.3, 5.7$ Correct manually otherwise reject Correct manually otherwise reject Correct manually otherwise reject Correct manually otherwise reject Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 7 LibLia ~ 000.900 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 8 LibLia ~ 000.900 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 8 LibLia ~ 000.900 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 4$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2 Correct manually otherwise $Q_{20} = 3$ Q ₂₀ ~ 2	1	$i_T \neq 3-5, \Delta$	Correct manually otherwise 3
3	2		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	3		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	4	YY ≠ valid day of month	Correct manually otherwise reject
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	5	GG ≠ 00 - 23	Correct manually otherwise reject
$ \begin{array}{c} 7 \\ \text{L}_{a_1, b_2, b_3} = \Delta $	6	$Qc \neq 1, 3, 5, 7$	Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		$Q_c = \Delta$	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	7		Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			
Time sequence checks Change in latitude > 0.7 °/hr Change in longitude > 0.7 °/hr Change in longitude > 0.7 °/hr when lat. 00–39.9 Change in longitude > 1.0 °/hr when lat. 40–49.9 Change in longitude > 1.0 °/hr when lat. 40–49.9 Change in longitude > 1.0 °/hr when lat. 40–69.9 Change in longitude > 2.0 °/hr when lat. 60–69.9 Change in longitude > 2.0 °/hr when lat. 70–79.3 Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.3 Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.3 Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.3 Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.3 Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.3 Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.3 Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.3 Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.3 Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.4 Correct manually otherwise $Q_{20} = 3$ Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.4 Correct manually otherwise $Q_{20} = 3$ Correct manually otherwise $Q_{20} = 3$ When lat. 70–79.4 Correct manually otherwise $Q_{20} = 3$ Correct manually and $Q_{20} = 5$ otherwise $Q_{20} = 3$ Correct manually and $Q_{20} = 5$ otherwise $Q_{20} = 3$ Correct manually and $Q_{20} = 5$ otherwise $Q_{20} = 3$ TIT $Q_{20} = 3$ Correct manually and $Q_{20} = 5$ otherwise $Q_{20} = 3$ Correct manually and $Q_{20} = 5$ otherwise	8		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
Change in latitude > 0.7 °hr Change in longitude > 0.7 °hr when lat. 00–39.9 Change in longitude > 0.7 °hr when lat. 00–39.9 Change in longitude > 1.0 °hr when lat. 40–49.9 Change in longitude > 1.4 °hr when lat. 50–59.9 Change in longitude > 2.0 °hr when lat. 50–59.9 Change in longitude > 2.0 °hr when lat. 60–69.9 Change in longitude > 2.7 °hr when lat. 60–69.9 Change in longitude > 2.7 °hr when lat. 60–69.9 Change in longitude > 2.7 °hr when lat. 60–69.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Change in longitude > 2.7 °hr when lat. 70–9 Change in longitude > 2.		$L_{a}L_{a}L_{a}=L_{0}L_{0}L_{0}L_{0}=\Delta\Delta\Delta\Delta(\Delta)$	Correct manually otherwise reject
Change in latitude > 0.7 °hr Change in longitude > 0.7 °hr when lat. 00–39.9 Change in longitude > 1.0 °hr when lat. 00–39.9 Change in longitude > 1.0 °hr when lat. 40–49.9 Change in longitude > 1.4 °hr when lat. 50–59.9 Change in longitude > 1.4 °hr when lat. 50–59.9 Change in longitude > 2.0 °hr when lat. 60–69.9 Change in longitude > 2.7 °hr when lat. 60–69.9 Change in longitude > 2.7 °hr when lat. 60–69.9 Change in longitude > 2.7 °hr when lat. 60–69.9 Change in longitude > 2.7 °hr when lat. 70–79.9 Indicator × 0–3, Δ Correct manually otherwise $Q_{20} = 3$ Volume $Q_{20} $			
Change in longitude > 0.7 °/hr when lat. 00–39.9 Change in longitude > 1.0 °/hr when lat. 00–39.9 Change in longitude > 1.0 °/hr when lat. 00–49.9 Change in longitude > 1.4 °/hr when lat. 00–49.9 Change in longitude > 2.0 °/hr when lat. 50–59.9 Change in longitude > 2.0 °/hr when lat. 50–59.9 Change in longitude > 2.7 °/hr when lat. 60–69.9 Change in longitude > 2.7 °/hr when lat. 70–79.9 Correct manually otherwise $Q_{20} = 3$ Correct manually and $Q_{20} = 3$ C	Time sequenc		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			Correct manually otherwise $Q_{20} = 3$
$\begin{array}{c} \text{when lat. } 40-49.9 \\ \text{Change in longitude} > 1.4^\circ\text{hr} \\ \text{when lat. } 50-59.9 \\ \text{Change in longitude} > 2.0^\circ\text{hr} \\ \text{when lat. } 60-69.9 \\ \text{Change in longitude} > 2.7^\circ\text{hr} \\ \text{when lat. } 60-69.9 \\ \text{Change in longitude} > 2.7^\circ\text{hr} \\ \text{when lat. } 60-69.9 \\ \text{Change in longitude} > 2.7^\circ\text{hr} \\ \text{when lat. } 70-79.9 \\ \text{Change in longitude} > 2.7^\circ\text{hr} \\ \text{when lat. } 70-79.9 \\ \text{Correct manually otherwise } Q_{20} = 3 \\ \text{Modificator } \circ 0-3.0 \\ Modif$			Connect recognishly of homeing O
$\begin{array}{c} Change in longitude > 1.4 \ ^{9} hr \\ when lat. 50-59.9 \\ Change in longitude > 2.0 \ ^{9} hr \\ when lat. 60-69.9 \\ Change in longitude > 2.7 \ ^{9} hr \\ when lat. 60-69.9 \\ Change in longitude > 2.7 \ ^{9} hr \\ when lat. 60-69.9 \\ Change in longitude > 2.7 \ ^{9} hr \\ when lat. 70-79.9 \\ Indicator **0-3, \Delta $			Correct manually otherwise $Q_{20} = 3$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			Correct manually otherwise $\Omega_{20} = 3$
$\begin{array}{c} Change in longitude > 2.0\ ^{\circ} hr \\ when lat. 60-69.9 \\ Change in longitude > 2.7\ ^{\circ} hr \\ when lat. 70-79.9 \\ \hline $			Solidati mandany data wide was - o
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			Correct manually otherwise Q ₂₀ = 3
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		when lat. 60–69.9	·
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			Correct manually otherwise $Q_{20} = 3$
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	10		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	11		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1.1		
$\begin{array}{c} N < N_h \\ dd \neq 00 - 36, 99 \\ dd = \Delta \Delta \\ dd \neq 00 - 36, 99 \\ dd = \Delta \Delta \\ dd versus ff \\ dd = 00, ff \neq 00 \\ Q_4 = 9 \\ \end{array}$	12		
$ \begin{array}{c} 13 \\ \text{dd} = \Delta \Delta \\ \text{dd} = 0, \ \text{ff} = 00 \\ \text{dd} \neq 0, \ \text{ff} = 00 \\ \text{de} = 0 \\ \text{de} = 0, \ \text{ff} = 00 \\ \text{de} = 0, \ \text{ff} = 0 \\ \text{de} = 0, \ \text{ff} = 0, \ \text{ff} = 0 \\ \text{de} = 0, \ \text{ff} = 0, \ \text{ff} = 0 \\ \text{de} = 0, \ \text{ff} = 0, \ \text{ff} = 0 \\ \text{de} = 0, \ \text{ff} = 0, \ \text{ff} = 0 \\ \text{de} = 0, \ \text{ff} = 0, \ \text{ff} = 0 \\ \text{de} = 0, \ \text{ff} = 0, \ \text{ff} = 0, \ \text{ff} = 0 \\ \text{de} = 0, \ \text{ff} = 0, \$	· -	•	
$ \begin{array}{c} \text{dd} = \Delta \Delta \\ \text{dd versus ff} \\ \text{dd} = 00, \text{ ff} \neq 00 \end{array} \qquad \begin{array}{c} Q_4 = 9 \\ Q_4 = Q_5 = 2 \\ \text{dd} \neq 00, \text{ ff} = 00 \end{array} \qquad \begin{array}{c} \text{Correct manually and } Q_4 \text{ or } Q_5 = 5 \text{ otherwise} \\ Q_4 = Q_5 = 2 \\ \text{dd} \neq 0, \text{ ff} = 00 \end{array} \qquad \begin{array}{c} \text{Correct manually and } Q_4 \text{ or } Q_5 = 5 \text{ otherwise} \\ Q_4 = Q_5 = 2 \\ \text{Correct manually, otherwise } Q_5 = 5 \text{ otherwise} \\ Q_5 = 9 \\ \text{15} \qquad \text{ff} > 80 \text{ knots} \qquad \text{Correct manually, otherwise } Q_5 = Q_29 = 4 \\ \text{16} \qquad \text{S}_n \neq 0, 1 \qquad \text{Correct manually, otherwise } Q_5 = 3 \\ \text{ff} = \Delta \Delta \qquad \qquad Q_5 = 9 \\ \text{17} \qquad \text{Correct manually, otherwise } Q_6 = 4 \\ \text{17} \qquad \text{TTT} = \Delta \Delta \Delta \qquad \qquad Q_6 = 9 \\ \text{ITT} < -25 \qquad \text{TTT} < 40 \text{ then when } Lat. < 45.0 \\ \text{TTT} < -25 \qquad \qquad Q_6 = 3 \\ \text{TTT} > 40 \qquad \qquad Q_6 = 3 \\ \text{TTT} < 40 \qquad \qquad Q_6 = 4 \\ \end{array}$	13		
$ \begin{array}{c} \text{dd versus ff} \\ \text{dd} = 00, \text{ ff} \neq 00 \\ \text{dd} = 00, \text{ ff} \neq 00 \\ \text{Q}_4 = Q_5 = 2 \\ \text{dd} \neq 0, \text{ ff} = 00 \\ \text{Correct manually and } Q_4 \text{ or } Q_5 = 5 \text{ otherwise} \\ Q_4 = Q_5 = 2 \\ \text{Correct manually and } Q_4 \text{ or } Q_5 = 5 \text{ otherwise} \\ Q_4 = Q_5 = 2 \\ \text{Correct manually, otherwise } Q_5 = 0 \\ Q_2 = 2 \\ \text{Correct manually and } Q_4 \text{ or } Q_5 = 5 \text{ otherwise} \\ Q_5 = 2 \\ \text{Correct manually and } Q_5 = 5, \text{ otherwise } Q_5 = 3 \\ \text{Correct manually and } Q_5 = 5, \text{ otherwise } Q_5 = 3 \\ \text{Correct manually, otherwise } Q_6 = 4 \\ \text{Correct manually, otherwise } Q_6 = 3 \\ \text{Correct manually, otherwise } Q_6 = 3 \\ \text{Correct manually, otherwise } Q_6 = 4 \\ \text{Correct manually, otherwise } Q_6 = 4 \\ \text{Correct manually, otherwise } Q_6 = 0 \\ \text{Correct manually, otherwise } Q_6 = 0 \\ \text{Correct manually, otherwise } Q_6 = 0 \\ Q_6 = 0 \\ \text{Correct manually, otherwise } Q_7 = 0 \\ \text{Correct manually, otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 = 0, \text{ otherwise } Q_7 = 0 \\ \text{Correct manually, and } Q_7 =$			
$Q_4 = Q_5 = 2$ $Correct \ manually \ and \ Q_4 \ or \ Q_5 = 5 \ otherwise$ $Q_4 = Q_5 = 2$ $14 \qquad i_w \neq 0, 1, 3, 4 \qquad Correct \ manually, \ otherwise \ Q_5 = Q_{29} = 4$ $15 \qquad \text{if } > 80 \ \text{knots} \qquad Correct \ manually, \ otherwise \ Q_5 = 3$ $\text{if } = \Delta\Delta \qquad Q_5 = 9$ $16 \qquad s_n \neq 0, 1 \qquad Correct \ manually, \ otherwise \ Q_6 = 4$ $17 \qquad TTT = \Delta\Delta\Delta \qquad Q_6 = 9$ $17 \qquad TTT = \Delta\Delta\Delta \qquad Q_6 = 9$ $17 \qquad TTT < -25 \qquad Q_6 = 4$ $17T < -25 \qquad Q_6 = 3$ $17T < -25 \qquad Q_6 = 3$ $17T < -25 \qquad Q_6 = 3$ $17T < 40 \qquad Q_6 = 3$ $26 = 4$ $27TT < WB \ (wet \ bulb) \qquad Correct \ manually \ and \ Q_6 = 5, \ otherwise \ Q_6 = Q_{19} = 2$ $17T < VB \ (wet \ bulb) \qquad Correct \ manually \ and \ Q_6 = Q_7 = 5, \ otherwise \ Q_6 = Q_7 = 2$ $18 \qquad s_1 \neq 0, 1, 2, 5, 6, 7 \qquad Correct \ manually, \ otherwise \ Q_7 = 4$ $19 \qquad DP > WB \qquad Correct \ manually, \ otherwise \ Q_7 = 4$ $19 \qquad DP > WB \qquad Correct \ manually \ and \ Q_7 = 5, \ otherwise \ Q_7 = Q_{19} = 2$ $19 \qquad DP > TTT \qquad Correct \ manually \ and \ Q_7 = 5, \ otherwise \ Q_7 = Q_9 = 2$ $19 \qquad DP > WB \qquad Correct \ manually \ and \ Q_7 = 5, \ otherwise \ Q_7 = Q_9 = 2$ $19 \qquad DP > TTT \qquad Correct \ manually \ and \ Q_7 = 5, \ otherwise \ Q_7 = Q_9 = 2$ $19 \qquad DP > TTT \qquad Correct \ manually \ and \ Q_7 = 5, \ otherwise \ Q_7 = Q_9 = 2$ $19 \qquad DP > TTT \qquad Correct \ manually \ and \ Q_8 = 5, \ otherwise \ Q_7 = Q_9 = 2$ $19 \qquad DP > TTT \qquad Correct \ manually \ and \ Q_8 = 5, \ otherwise \ Q_8 = 3$ $20 \qquad 930 > PPPP > 1050 \ hPa \qquad Correct \ manually \ and \ Q_8 = 5, \ otherwise \ Q_8 = 4$		dd versus ff	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		$dd = 00$, ff $\neq 00$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11 00 # 00	. •
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		aa ≠ 00, π = 00	
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	14	i ≠ 0. 1. 3. 4	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	10		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	16		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		**	
$\begin{array}{c} \text{when Lat.} < 45.0 \\ \text{TTT} < -25 \\ \text{TTT} > 40 \\ \text{when Lat.} \ge 45.0 \\ \text{TTT} < -25 \\ \text{TTT} > 40 \\ \text{when Lat.} \ge 45.0 \\ \text{TTT} < -25 \\ \text{TTT} > 40 \\ \text{Q}_6 = 3 \\ \text{TTT} > 40 \\ \text{Q}_6 = 4 \\ \end{array}$ $\begin{array}{c} \text{Correct manually and } Q_6 = 5, \text{ otherwise } Q_6 = Q_{19} = 2 \\ \text{TTT} < \text{DP (dew point)} \\ \text{Correct manually and } Q_6 = Q_7 = 5, \text{ otherwise } Q_6 = Q_{19} = 2 \\ \text{Q}_6 = Q_7 = 2 \\ \text{St} \neq 0, 1, 2, 5, 6, 7 \\ \text{Correct manually, otherwise } Q_7 = 4 \\ \text{DP} > \text{WB} \\ \text{DP} > \text{TTT} \\ \text{Correct manually and } Q_7 = 5, \text{ otherwise } Q_7 = Q_{19} = 2 \\ \text{DP} > \text{TTT} \\ \text{Correct manually and } Q_7 = 5, \text{ otherwise } Q_7 = Q_{6} = 2 \\ \text{WB} = \text{DP} = \Delta\Delta\Delta\Delta \\ \text{Q}_7 = Q_{19} = 9 \\ \text{20} \\ \text{930} > \text{PPPP} > 1050 \text{ hPa} \\ \text{870} > \text{PPPP} > 1070 \text{ hPa} \\ \text{Correct manually and } Q_8 = 5, \text{ otherwise } Q_8 = 3 \\ \text{Correct manually and } Q_8 = 5, \text{ otherwise } Q_8 = 4 \\ \end{array}$			-
$\begin{array}{c} \text{TTT} > 40 \\ \text{when Lat.} \ge 45.0 \\ \text{TTT} < -25 \\ \text{TTT} > 40 \end{array} \qquad \begin{array}{c} Q_6 = 3 \\ Q_6 = 3 \\ \text{TTT} > 40 \end{array}$ $\begin{array}{c} Q_6 = 3 \\ Q_6 = 4 \end{array}$ $\begin{array}{c} \text{TTT versus humidity parameters} \\ \text{TTT} < \text{WB (wet bulb)} \\ \text{TTT} < \text{DP (dew point)} \end{array} \qquad \begin{array}{c} \text{Correct manually and } Q_6 = 5 \text{, otherwise } Q_6 = Q_{19} = 2 \\ \text{Correct manually and } Q_6 = Q_7 = 5 \text{, otherwise} \\ Q_6 = Q_7 = 2 \\ \text{18} \qquad \text{S}_1 \ne 0, 1, 2, 5, 6, 7 \end{array} \qquad \begin{array}{c} \text{Correct manually, otherwise } Q_7 = 4 \\ \text{19} \qquad \text{DP} > \text{WB} \qquad \text{Correct manually and } Q_7 = 5 \text{, otherwise } Q_7 = Q_{19} = 2 \\ \text{DP} > \text{TTT} \qquad \text{Correct manually and } Q_7 = 5 \text{, otherwise } Q_7 = Q_6 = 2 \\ \text{WB} = \text{DP} = \Delta\Delta\Delta\Delta \qquad Q_7 = Q_{19} = 9 \\ \text{20} \qquad 930 > \text{PPPP} > 1050 \text{ hPa} \qquad \text{Correct manually and } Q_8 = 5 \text{, otherwise } Q_8 = 3 \\ 870 > \text{PPPP} > 1070 \text{ hPa} \qquad \text{Correct manually and } Q_8 = 5 \text{, otherwise } Q_8 = 4 \end{array}$			
$ \begin{array}{llllllllllllllllllllllllllllllllllll$			
$\begin{array}{c} \text{TTT} < -25 \\ \text{TTT} > 40 \end{array} \qquad \begin{array}{c} Q_6 = 3 \\ Q_6 = 4 \end{array}$ $\begin{array}{c} \text{TTT versus humidity parameters} \\ \text{TTT} < \text{WB (wet bulb)} \\ \text{TTT} < \text{DP (dew point)} \end{array} \qquad \begin{array}{c} \text{Correct manually and } Q_6 = 5 \text{, otherwise } Q_6 = Q_{19} = 2 \\ \text{Correct manually and } Q_6 = Q_7 = 5 \text{, otherwise} \\ Q_6 = Q_7 = 2 \end{array}$ $\begin{array}{c} \text{RS} \qquad \text{RS} \neq 0, 1, 2, 5, 6, 7 \\ \text{SOME of manually and } Q_7 = 5 \text{, otherwise } Q_7 = Q_{19} = 2 \\ \text{DP} > \text{TTT} \\ \text{DP} > \text{TTT} \end{array} \qquad \begin{array}{c} \text{Correct manually and } Q_7 = 5 \text{, otherwise } Q_7 = Q_{19} = 2 \\ \text{Correct manually and } Q_7 = 5 \text{, otherwise } Q_7 = Q_6 = 2 \\ \text{WB} = \text{DP} = \Delta\Delta\Delta \\ \text{WB} = \text{DP} > 1050 \text{ hPa} \\ \text{RS} \qquad \text{Correct manually and } Q_8 = 5 \text{, otherwise } Q_8 = 3 \\ \text{Correct manually and } Q_8 = 5 \text{, otherwise } Q_8 = 4 \end{array}$			$Q_6 = 3$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			0 - 2
$\begin{array}{lll} & TTT < WB \ (\text{wet bulb}) & Correct \ manually \ and \ Q_6 = 5, \ otherwise \ Q_6 = Q_{19} = 2 \\ & Correct \ manually \ and \ Q_6 = Q_7 = 5, \ otherwise \ Q_6 = Q_7 = 2 \\ & Q_6 = Q_7 = 2 \\ & Q_6 = Q_7 = 2 \\ & Q_7 = 2 \\ & Correct \ manually, \ otherwise \ Q_7 = 4 \\ & DP > WB & Correct \ manually \ and \ Q_7 = 5, \ otherwise \ Q_7 = Q_{19} = 2 \\ & DP > TTT & Correct \ manually \ and \ Q_7 = 5, \ otherwise \ Q_7 = Q_6 = 2 \\ & WB = DP = \Delta\Delta\Delta\Delta & Q_7 = Q_{19} = 9 \\ & 20 & 930 > PPPP > 1050 \ hPa & Correct \ manually \ and \ Q_8 = 5, \ otherwise \ Q_8 = 3 \\ & 870 > PPPP > 1070 \ hPa & Correct \ manually \ and \ Q_8 = 5, \ otherwise \ Q_8 = 4 \\ \end{array}$		111 > 40	∠ 6 = 4
$\begin{array}{lll} & TTT < WB \ (\text{wet bulb}) & Correct \ manually \ and \ Q_6 = 5, \ otherwise \ Q_6 = Q_{19} = 2 \\ & Correct \ manually \ and \ Q_6 = Q_7 = 5, \ otherwise \ Q_6 = Q_7 = 2 \\ & Q_6 = Q_7 = 2 \\ & Q_6 = Q_7 = 2 \\ & Q_7 = 2 \\ & Correct \ manually, \ otherwise \ Q_7 = 4 \\ & DP > WB & Correct \ manually \ and \ Q_7 = 5, \ otherwise \ Q_7 = Q_{19} = 2 \\ & DP > TTT & Correct \ manually \ and \ Q_7 = 5, \ otherwise \ Q_7 = Q_6 = 2 \\ & WB = DP = \Delta\Delta\Delta\Delta & Q_7 = Q_{19} = 9 \\ & 20 & 930 > PPPP > 1050 \ hPa & Correct \ manually \ and \ Q_8 = 5, \ otherwise \ Q_8 = 3 \\ & 870 > PPPP > 1070 \ hPa & Correct \ manually \ and \ Q_8 = 5, \ otherwise \ Q_8 = 4 \\ \end{array}$			
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	TTT versus hu		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			
$\begin{array}{lll} 18 & s_t \neq 0,1,2,5,6,7 & \text{Correct manually, otherwise } Q_7 = 4 \\ 19 & DP > WB & \text{Correct manually and } Q_7 = 5, \text{ otherwise } Q_7 = Q_{19} = 2 \\ DP > TTT & \text{Correct manually and } Q_7 = 5, \text{ otherwise } Q_7 = Q_6 = 2 \\ WB = DP = \Delta\Delta\Delta & Q_7 = Q_{19} = 9 \\ 20 & 930 > PPPP > 1050 \text{ hPa} & \text{Correct manually and } Q_8 = 5, \text{ otherwise } Q_8 = 3 \\ 870 > PPPP > 1070 \text{ hPa} & \text{Correct manually and } Q_8 = 5, \text{ otherwise } Q_8 = 4 \\ \end{array}$		TTT < DP (dew point)	
$\begin{array}{lll} \text{DP} > \text{WB} & \text{Correct manually and } Q_7 = 5 \text{, otherwise } Q_7 = Q_{19} = 2 \\ \text{DP} > \text{TTT} & \text{Correct manually and } Q_7 = 5 \text{, otherwise } Q_7 = Q_6 = 2 \\ \text{WB} = \text{DP} = \Delta\Delta\Delta\Delta & Q_7 = Q_{19} = 9 \\ \text{20} & 930 > \text{PPPP} > 1050 \text{ hPa} & \text{Correct manually and } Q_8 = 5 \text{, otherwise } Q_8 = 3 \\ 870 > \text{PPPP} > 1070 \text{ hPa} & \text{Correct manually and } Q_8 = 5 \text{, otherwise } Q_8 = 4 \\ \end{array}$	10	0.010507	
$\begin{array}{lll} \text{DP > TTT} & \text{Correct manually and } Q_7 = 5, \text{ otherwise } Q_7 = Q_6 = 2 \\ \text{WB = DP = } \Delta\Delta\Delta & Q_7 = Q_{19} = 9 \\ 20 & 930 > \text{PPPP > } 1050 \text{ hPa} & \text{Correct manually and } Q_8 = 5, \text{ otherwise } Q_8 = 3 \\ 870 > \text{PPPP > } 1070 \text{ hPa} & \text{Correct manually and } Q_8 = 5, \text{ otherwise } Q_8 = 4 \\ \end{array}$			
$WB = DP = \Delta\Delta\Delta$ $Q_7 = Q_{19} = 9$ $20 \qquad 930 > PPPP > 1050 \text{ hPa}$ $R = Q_{19} = 9$ $R = Q_{19} = Q_{19} = Q_{19}$ $R = Q_{$	19		
20 $930 > PPPP > 1050 \text{ hPa}$ Correct manually and $Q_8 = 5$, otherwise $Q_8 = 3$ Correct manually and $Q_8 = 5$, otherwise $Q_8 = 4$			
$870 > PPPP > 1070 \text{ hPa}$ Correct manually and $Q_8 = 5$, otherwise $Q_8 = 4$	20		
$PPPP = \Delta\Delta\Delta\Delta \qquad \qquad Q_8 = 9$			$Q_8 = 9$
21 $ww = 22-24, 26, 36-39, 48, 49, 56, 57,$ Correct manually and $Q_9 = 5$, otherwise $Q_9 = 4$		$\Gamma \Gamma \Gamma \Gamma = \Delta \Delta \Delta \Delta \Delta$	
66–79, 83–88	21		

39-94 Correct manually and Q ₀ = 5, otherwise Q ₀ = 3	F1		Anthon
and lattude <20° I i = 7' W ₁ = 7' W ₂ W ₃ = 24-25, 35, 47-48, 54-56, 64-86, 70-78, 85-87 and latitude <20° W < W ₂ W < W ₃ W < W ₄ W = W ₄ = M ₂ = A.6 (Correct manually and Q ₃ = 5, otherwise Q ₃ = 4 Correct manually and Q ₂ = 5, otherwise Q ₃ = 2 W < W ₄ W = W ₄ = M ₂ A.6 (Correct manually and Q ₂ = 5, otherwise Q ₃ = 2 W < W ₄ W = W ₄ = M ₂ A.6 (Correct manually and Q ₂ = 5, otherwise Q ₃ = 2 W + Q ₄ N + S, and not (N ₄ + S and Correct manually and Q ₃ = 5, otherwise Q ₃ = 2 N + C, and N ₄ C ₁ C ₁ C ₁ C ₁ C ₂ A.6 (Correct manually and Q ₃ = 5, otherwise Q ₃ = 2 N + C, and N ₄ C ₁ C ₁ C ₁ C ₁ C ₂ A.6 (Correct manually and Q ₃ = 5, otherwise Q ₃ = 2 N + C, and N ₄ C ₁ C ₁ C ₁ C ₁ C ₂ A.6 (Correct manually and Q ₃ = 5, otherwise Q ₃ = 2 N + C, and N ₄ C ₁ C ₁ C ₁ C ₁ C ₂ C ₁ C ₂ C ₃ C ₄	Element	Error	Action
fi = 7'			Correct manually and $Q_9 = 5$, otherwise $Q_9 = 3$
W ₁ ,W ₃ = 24–25, 35, 47–48, 54–56, Correct manually and Q ₂ = 5, otherwise Q ₂ = 4 64–68, 70–78, 85–87 and latitude <20° W ₁ < W ₂ W ₂ w W ₂ w 2 ADA			
64-68, 70-78, 85-87 and lattitude <20° 22, 23		• • • • • • • • • • • • • • • • • • • •	Correct manually and $Q_0 = 5$, otherwise $Q_0 = 4$
$ \begin{array}{c} 22, \ 23 \\ \text{W}, \text{If } W_2 = \text{YM} = \text{A} \text{A} \text{A} \text{A} \\ \text{W} \in W_2 = \text{W} = \Delta \text{A} \text{A} \text{A} \\ \text{W} \in W_2 = \text{W} = \Delta \text{A} \text{A} \text{A} \\ \text{W} \in W_2 = \text{W} = \Delta \text{A} \text{A} \text{A} \\ \text{N} = 0, \text{and } \text{M}_{\text{C}}(C_{\text{N}}C_{\text{C}} + \text{O} \text{A} \text{A} \text{A} \text{A} \text{A} \text{A} \\ \text{N} = 0, \text{and } \text{M}_{\text{C}}(C_{\text{N}}C_{\text{C}} + \text{A} \text{A} \text{A} \text{A} \text{A} \text{A} \text{A} \text{A}$			concornantally and ag o, concorned ag
		_	
24-27 N = N/y = ww = ΔΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ C ₂ + ΔΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ C ₂ + ΔΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ C ₂ + ΔΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₂ + ΔΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C ₁ C ₁ C ₁ C ₁ C ₁ + ΔΔΔ N 0, and N ₁ C	22, 23		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		· · · · · · · · · · · · · · · · · · ·	
$ \begin{aligned} & N = \Delta, & \text{and N}_{N}C, \text{CuC}_{N} + \Delta \Delta \Delta \Delta \\ & N = 9, \text{ and not } (N_n = 9) \text{ and } \text{ cl.} \text{Cuch} + \Delta \Delta \Delta \Delta \\ & N = 0, \text{ and not } (N_n = 9) \text{ and } \text{ cl.} \text{Cuch} + \Delta \Delta \Delta \Delta \Delta \\ & N = 0, \text{ and not } N_{0}C, \text{Cu}_{0}C_{1} + \Delta $	24_27		
$ \begin{array}{c} N = 9, \text{ and } \text{ not } (N_h = 9 \text{ and } \\ & \Delta \Delta \Delta \\ N = \Delta, \text{ and } N_{\text{FC}} C_{\text{NC}} C_{\text{HC}} \Delta \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{FC}} C_{\text{NC}} C_{\text{HC}} \Delta \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{FC}} C_{\text{NC}} C_{\text{HC}} \Delta \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{FC}} C_{\text{NC}} C_{\text{HC}} \Delta \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{FC}} C_{\text{NC}} C_{\text{HC}} \Delta \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{FC}} C_{\text{NC}} C_{\text{HC}} \Delta \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{HC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{HC}} C_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{LAC}} C_{\text{LAC}} + \Delta \Delta \Delta \\ & N = \Delta, \text{ and } N_{\text{LAC}} C_{\text{LAC}} +$	24 27		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
28			, , ,
29		$N=\Delta$, and $N_hC_LC_MC_H=\Delta\Delta\Delta\Delta\Delta$	$Q_3 = 9$
H − 2.0 → T ₁ T ₁ T ₁ → 37.0 then when Lat. 45.0 TyTyTyT ₁ V < −2.0 TyTyT ₂ V < −2.0 TyTyTyT ₂ V < −2.0 TyTyTyTy < −2.0 TyTyTyTyTy < −2.0 TyTyTyTyTy < −2.0 TyTyTyTyTy < −2.0 TyTyTyTyTyTyTyTy < −2.0 TyTyTyTyTyTyTyTyTyTyTyTyTyTyTyTyTyTyTy			
when Lat. < 45.0	29	•	$Q_{10} = 9$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
T.T.T. $_{w}$ > 37.0 when Lat ≥ 45.0 Typ Typ Typ < −2.0 Typ			Control manually and $\Omega_{10} = 5$ otherwise $\Omega_{10} = 4$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
30 Indicator × 0-7. Δ Correct manually, otherwise Δ 31 Indicator × 0-9, Δ Correct manually, otherwise Δ 32 20 × P _P P _N × 30 Q ₁₁ = 3 P _W P _{PV} ≥ 30 and ≠ 99 Q ₁₁ = 4 P _W P _{PV} ≥ 30 Q ₁₂ = 3 H _W H _W ≥ 50 Q ₁₂ = 3 H _W H _W ≥ 50 Q ₁₂ = 4 H _W H _W = ΔΔ Q ₁₂ = 4 W _W P _W = 30 Q ₁₃ = 3 swell; swell			
31 Indicator $*$ 0-9, $Δ$ Correct manually, otherwise $Δ$ 32 $20 < P_w P_w < 30$ $Q_{11} = 3$ $P_w P_w ≥ 30$ and $*$ 99 $Q_{11} = 9$ 33 $35 < HwHw < 50$ $Q_{12} = 3$ $HwHw ≥ 50$ $Q_{12} = 4$ $HwHw ≥ ΔΔ$ $Q_{12} = 9$ 34 $d_{w1} d_{w1} = 00-36$, 99 Correct manually and $Q_{13} = 5$, otherwise $Q_{13} = 4$ 35 $25 < P_{w1} P_{w1} < 30$ $Q_{13} = 9$ 36 $35 < H_{w1} H_{w1} < 50$ $Q_{13} = 3$ $P_{w1} P_{w1} ≥ 30$ and $* 99$ $Q_{13} = 4$ 37 $I_{w1} = -5$, $Δ$ Correct manually, otherwise $Δ$ 38 $I_{w1} = -5$, $Δ$ Correct manually, otherwise $Δ$ 39 $I_{w1} = -5$, $Δ$ Correct manually, otherwise $Δ$ 40 Source $* * * * * * * * * * * * * * * * * * *$			· ·
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$,	
$ \begin{array}{c} P_{NP} P_{W} = \Delta \Delta \\ 35 < \text{HwHw} < 50 \\ H_{W} H_{W} \ge 50 \\ H_{W} H_{W} \ge 60 \\ H_{W} H_{W} = \Delta \Delta \\ 34 & Q_{12} = 4 \\ Q_{13} = 3 \\ Q_{13} = 4 \\ Q_{14} = 4 \\ Q_{15} = 4 \\ Q_{15}$	32		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			
	33	** **	
34			
$ \begin{array}{c} swell_1 = swell_2 = \Delta \\ 25 < P_{rrr}P_{rrr} < 30 \\ P_{trr}P_{rrrr} < 30 \\ P_{trr}P_{rrrrr} < 30 \\ P_{trrr}P_{rrrrrrr} < 30 \\ P_{trrrrrrrrrrr} < 99 \\ P_{trrrrrrr} < 90 \\ P_{trrrrrr} < 10 \\ P_{trrrrrr} < 10 \\ P_{trrrrr} < 10 \\ P_{trrrrr} < 10 \\ P_{trrrrr} < 10 \\ P_{trrrrrr} < 10 \\ P_{trrrrr} < 10 \\ P_{trrrrrr} < 10 \\ P_{trrrrrrr} < 10 \\ P_{trrrrrrrr} < 10 \\ P_{trrrrrrrrrrr} < 10 \\ P_{trrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	0.4		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	34		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	35		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	36		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		$H_{w1}H_{w1} \ge 50$	$Q_{13} = 4$
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		•	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			· ·
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		•	• .
42 No call sign Insert manually, mandatory entry 43 No country code Insert manually (Insert manually (Inse			
43 No country code No Quality Control 45 Q ≠ 0-6, 9 Correct manually, otherwise Δ 46 $i_x ≠ 1-7$ Correct manually, otherwise Δ 47 $i_R = 0-2$ and RRR = 000, ΔΔΔ Correct manually, otherwise $Q_{14} = 4$ $i_R = 3$ and RRR ≠ ΔΔΔ Correct manually, otherwise $Q_{14} = 2$ $i_R ≠ 4$ and RRR ≠ ΔΔΔ Correct manually, otherwise $Q_{14} = 2$ $i_R ≠ 0-4$ Correct manually, otherwise $Q_{14} = 2$ 48 RRR ≠ 001−999 and iR = 1, 2 Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 2$ 49 $t_R ≠ 0-9$, Δ Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 4$ 50 $s_W ≠ 0$, 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 = ΔΔΔ $Q_{19} = 9$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ a = 4 and ppp ≠ 000 Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ Correct manually and $Q_{15} = $			=
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 $Q_{14} = 2$ $i_R \neq 4$ and RRR $\neq \Delta\Delta\Delta$ Correct manually, otherwise $Q_{14} = 2$ $i_R \neq 0-4$ Correct manually, otherwise $Q_{14} = 2$ $i_R \neq 0-9$ Correct manually, otherwise $Q_{14} = 2$ $i_R \neq 0-9$ Correct manually, otherwise $Q_{14} = 2$ $i_R \neq 0-9$ Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 2$ $i_R \neq 0-9$ Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{19} = 5$, otherwise $Q_{19} = Q_{7} = 2$ $i_R \neq 0-9$ Correct manually and $Q_{19} = 5$, otherwise $Q_{19} = Q_{7} = 2$ $i_R \neq 0-9$ Correct manually and $Q_{15} = 5$, otherwise $Q_{19} = Q_{6} = 2$ $i_R \neq 0-9$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 2$ $i_R \neq 0-9$ Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 2$ $i_R \neq 0-9$ Correct manually and $Q_{16} = 5$, otherwise $Q_{16} = 3$ $i_R \neq 0-9$ Correct manually and $Q_{16} = 5$ otherwise $Q_{16} = 3$ $i_R \neq 0-9$ Correct manually and $Q_{16} = 5$ otherwise $Q_{16} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{16} = 5$ otherwise $Q_{16} = 4$ $i_R \neq 0-9$ Correct manually and $Q_{17} = 5$, otherwise $Q_{17} = 4$		•	
$\begin{array}{llll} 46 & i_x \neq 1-7 & & & & & & \\ I_R = 0-2 \text{ and } RRR = 000, \Delta\Delta\Delta & & & & & \\ I_R = 3 \text{ and } RRR \neq \Delta\Delta\Delta & & & & & \\ I_R = 4 \text{ and } RRR \neq \Delta\Delta\Delta & & & & & \\ I_R = 4 \text{ and } RRR \neq \Delta\Delta\Delta & & & & & \\ I_R = 4 \text{ and } RRR \neq \Delta\Delta\Delta & & & & \\ I_R = 4 \text{ and } RRR \neq \Delta\Delta\Delta & & & & \\ I_R \neq 0-4 & & & & & \\ RRR \neq 001-999 \text{ and } iR = 1, 2 & & & & \\ RRR \neq 001-999 \text{ and } iR = 1, 2 & & & & \\ RRR \neq 0-9, \Delta & & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & & \\ Sw \neq 0, 1, 2, 5, 6, 7 & & \\ Sw \neq 0, 1, 2,$,
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$,	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			· ·
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4/		• •
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			· ·
$\begin{array}{llllllllllllllllllllllllllllllllllll$			
$\begin{array}{lll} 49 & & t_{R}\neq 0-9, \Delta & & Correct \ manually \ and \ Q_{14}=5, \ otherwise \ Q_{14}=4 \\ 50 & s_{w}\neq 0, 1, 2, 5, 6, 7 & Correct \ manually, \ otherwise \ Q_{19}=4 \\ 51 & WB < DP & Correct \ manually \ and \ Q_{19}=5, \ otherwise \ Q_{19}=Q_{7}=2 \\ WB = \Delta\Delta\Delta & Q_{19}=9 & Correct \ manually \ and \ Q_{19}=5, \ otherwise \ Q_{19}=Q_{6}=2 \\ 52 & a\neq 0-8 & Correct \ manually \ and \ Q_{15}=5, \ otherwise \ Q_{15}=4 \\ a=4 \ and \ ppp \neq 000 & Correct \ manually \ and \ Q_{15} \ or \ Q_{16}=5, \ otherwise \ Q_{15}=Q_{16}=2 \\ a=1,2,3,6,7,8 \ and \ ppp=000 & Correct \ manually \ and \ Q_{15} \ or \ Q_{16}=5, \ otherwise \ Q_{15}=Q_{16}=2 \\ a=\Delta & Q_{15}=9 \\ 53 & 250 \geq ppp > 150 & Correct \ manually \ and \ Q_{16}=5, \ otherwise \ Q_{16}=3 \\ ppp = \Delta\Delta\Delta & Q_{16}=9 \\ 54 & D_{s}\neq 0-9 & Correct \ manually \ and \ Q_{17}=5, \ otherwise \ Q_{17}=4 \\ \end{array}$	48		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$			
$\begin{array}{lll} WB = \Delta\Delta\Delta\Delta & Q_{19} = 9 \\ WB > TTT & Correct \ manually \ and \ Q_{19} = 5, \ otherwise \ Q_{19} = Q_6 = 2 \\ 2 & a \neq 0 - 8 & Correct \ manually \ and \ Q_{15} = 5, \ otherwise \ Q_{15} = 4 \\ 2 & a = 4 \ and \ ppp \neq 000 & Correct \ manually \ and \ Q_{15} \ or \ Q_{16} = 5, \ otherwise \ Q_{15} = Q_{16} = 2 \\ 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 \\ 2 & a = \Delta & Q_{15} = 9 \\ 3 & 250 \geq ppp > 150 & Correct \ manually \ and \ Q_{16} = 5, \ otherwise \ Q_{16} = 3 \\ 250 \geq ppp > 250 & Correct \ manually \ and \ Q_{16} = 5 \ otherwise \ Q_{16} = 4 \\ 250 \geq ppp = \Delta\Delta\Delta\Delta & Q_{16} = 9 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \\ 30 & Correct \ manually \ and \ Q_{19} = 5, \ otherwise \ Q_{19} = 2 \\ 30 & Correct \ manually \ and \ Q_{19} = 5, \ otherwise \ Q_{19} = 2 \\ 30 & Correct \ manually \ and \ Q_{19} = 5, \ otherwise \ Q_{19} = 2 \\ 30 & Correct \ manually \ and \ Q_{19} = 5, \ otherwise \ Q_{19} = 2 \\ 30 & Correct \ manually \ and \ Q_{19} = 5, \ otherwise \ Q_{19} = 2 \\ 30 & Correct \ manuall$			
$\begin{array}{llll} & WB > TTT & Correct \ manually \ and \ Q_{19}=5, \ otherwise \ Q_{19}=Q_6=2 \\ & a \neq 0-8 & Correct \ manually \ and \ Q_{15}=5, \ otherwise \ Q_{15}=4 \\ & a = 4 \ and \ ppp \neq 000 & Correct \ manually \ and \ Q_{15} \ or \ Q_{16}=5, \ otherwise \\ & Q_{15}=Q_{16}=2 \\ & a = 1,2,3,6,7,8 \ and \ ppp=000 & Correct \ manually \ and \ Q_{15} \ or \ Q_{16}=5, \ otherwise \ Q_{15}=Q_{16}=2 \\ & a = \Delta & Q_{15}=9 \\ & 250 \geq ppp > 150 & Correct \ manually \ and \ Q_{16}=5, \ otherwise \ Q_{16}=3 \\ & ppp > 250 & Correct \ manually \ and \ Q_{16}=5 \ otherwise \ Q_{16}=4 \\ & ppp = \Delta\Delta\Delta & Q_{16}=9 \\ & 54 & D_{8} \neq 0-9 & Correct \ manually \ and \ Q_{17}=5, \ otherwise \ Q_{17}=4 \\ \end{array}$	51		· ·
$\begin{array}{lll} 52 & \text{a} \neq 0-8 & \text{Correct manually and } Q_{15} = 5, \text{ otherwise } Q_{15} = 4 \\ & \text{a} = 4 \text{ and ppp} \neq 000 & \text{Correct manually and } Q_{15} \text{ or } Q_{16} = 5, \text{ otherwise } \\ & Q_{15} = Q_{16} = 2 \\ & \text{a} = 1,2,3,6,7,8 \text{ and ppp} = 000} & \text{Correct manually and } Q_{15} \text{ or } Q_{16} = 5, \text{ otherwise } Q_{15} = Q_{16} = 2 \\ & \text{a} = \Delta & Q_{15} = 9 \\ & 250 \geq \text{ppp} > 150 & \text{Correct manually and } Q_{16} = 5, \text{ otherwise } Q_{16} = 3 \\ & \text{ppp} > 250 & \text{Correct manually and } Q_{16} = 5 \text{ otherwise } Q_{16} = 4 \\ & \text{ppp} = \Delta\Delta\Delta\Delta & Q_{16} = 9 \\ & 54 & D_{\text{S}} \neq 0-9 & \text{Correct manually and } Q_{17} = 5, \text{ otherwise } Q_{17} = 4 \\ \end{array}$			
$\begin{array}{c} a=4 \text{ and ppp} \neq 000 & Correct \ manually \ and \ Q_{15} \ or \ Q_{16} = 5, \ otherwise \\ Q_{15} = Q_{16} = 2 \\ a=1,2,3,6,7,8 \ and \ ppp=000 & Correct \ manually \ and \ Q_{15} \ or \ Q_{16} = 5, \ otherwise \ Q_{15} = Q_{16} = 2 \\ a=\Delta & Q_{15} = 9 \\ 53 & 250 \geq ppp > 150 & Correct \ manually \ and \ Q_{16} = 5, \ otherwise \ Q_{16} = 3 \\ ppp > 250 & Correct \ manually \ and \ Q_{16} = 5 \ otherwise \ Q_{16} = 4 \\ ppp = \Delta\Delta\Delta & Q_{16} = 9 \\ 54 & D_{s} \neq 0 - 9 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \end{array}$	52		
$\begin{array}{c} Q_{15} = Q_{16} = 2 \\ a = 1, 2, 3, 6, 7, 8 \text{ and ppp} = 000 \\ a = \Delta \\ 250 \geq \text{ppp} > 150 \\ \text{ppp} > 250 \\ \text{ppp} = \Delta\Delta\Delta \\ D_{\text{S}} \neq 0 - 9 \end{array} \qquad \begin{array}{c} Q_{15} = Q_{16} = 2 \\ Q_{15} = 9 \\ \text{Correct manually and } Q_{16} = 5, \text{ otherwise } Q_{16} = 3 \\ \text{Correct manually and } Q_{16} = 5 \text{ otherwise } Q_{16} = 4 \\ Q_{16} = 9 \\ \text{Correct manually and } Q_{17} = 5, \text{ otherwise } Q_{17} = 4 \end{array}$	52		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		~ - 1 and bbb = 000	
$\begin{array}{lll} 53 & 250 \geq ppp > 150 & Correct \ manually \ and \ Q_{16} = 5, \ otherwise \ Q_{16} = 3 \\ ppp > 250 & Correct \ manually \ and \ Q_{16} = 5 \ otherwise \ Q_{16} = 4 \\ ppp = \Delta\Delta\Delta & Q_{16} = 9 \\ 54 & D_s \neq 0-9 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \end{array}$		a =1,2,3,6,7,8 and ppp=000	
$\begin{array}{ll} ppp > 250 & Correct \ manually \ and \ Q_{16} = 5 \ otherwise \ Q_{16} = 4 \\ ppp = \Delta\Delta\Delta & Q_{16} = 9 \\ 54 & D_s \neq 0-9 & Correct \ manually \ and \ Q_{17} = 5, \ otherwise \ Q_{17} = 4 \end{array}$			
$\begin{array}{ccc} & & & & & & & & & & \\ ppp = \Delta\Delta\Delta & & & & & & \\ S4 & & & & & \\ D_s \neq 0-9 & & & & \\ & & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & \\ & & & \\ & \\ & & \\ & \\ & & \\ & $	53		
54 $D_s \neq 0-9$ Correct manually and $Q_{17} = 5$, otherwise $Q_{17} = 4$			=
	54	• • •	
		$D_s = \Delta$	Q ₁₇ = 9

Element	Error	Action
55	V _s ≠ 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} ≥ 30 and ≠99	$Q_{13} = 4$
58	$35 < H_{w2}H_{w2} < 50$	$Q_{13} = 3$
	$H_{w2}H_{w2} \ge 50$	$Q_{13} = 4$
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
<mark>64</mark>	version $\neq 0-9$, A, Δ	Correct manually, otherwise Δ
<mark>65</mark>	version $\neq 0-4$, Δ	Correct manually, otherwise Δ
86	Minimum Quality Control Standard	1= MQCS-I (Original version, Feb. 1989) CMM-X
00	(MQCS) version identification	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
0.7	LIDC - 000 360	6 = MQCS-VI (this version, to be agreed)
87	HDG ≠ 000–360	Correct manually and $Q_{22} = 5$, otherwise $Q_{22} = 4$
00	$HDG = \Delta\Delta\Delta$	$Q_{22} = 9$
88	COG ≠ 000–360	Correct manually and $Q_{23} = 5$, otherwise $Q_{23} = 4$
00	$COG = \Delta\Delta\Delta$	$Q_{23} = 9$
89	SOG ≠ 00-99	Correct manually and $Q_{24} = 5$, otherwise $Q_{24} = 4$
	$SOG = \Delta\Delta$	$Q_{24} = 9$
00	SOG > 33	Correct manually and $Q_{24} = 5$, otherwise $Q_{24} = 3$
90	SLL ≠ 00-99	Correct manually and $Q_{25} = 5$, otherwise $Q_{25} = 4$
	$SLL = \Delta\Delta$	$Q_{25} = 9$
04	SLL > 40	Correct manually and $Q_{25} = 5$, otherwise $Q_{25} = 3$
91	s _L ≠ 0,1	Correct manually and $Q_{27} = 5$, otherwise $Q_{27} = 4$
<mark>92</mark>	hh ≠ 00–99	Correct manually and $Q_{27} = 5$, otherwise $Q_{27} = 4$
	$hh = \Delta\Delta$	$Q_{27} = 9$
	hh >= 13	Correct manually and $Q_{27} = 5$, otherwise $Q_{27} = 3$
00	hh < -01	Correct manually and $Q_{27} = 5$, otherwise $Q_{27} = 4$
<mark>93</mark>	RWD ≠ 000 – 360, 999	Correct manually and $Q_{28} = 5$, otherwise $Q_{28} = 4$
0.4	$RWD = \Delta\Delta\Delta$	$Q_{28} = 9$
<mark>94</mark>	RWS ≠ 000–999	Correct manually and $Q_{29} = 5$, otherwise $Q_{29} = 4$
	$RWS = \Delta\Delta\Delta$	$Q_{28} = 9$
	RWS > 110 kts	Correct manually and $Q_{29} = 5$, otherwise $Q_{29} = 3$
RWD versu	s RWS	
voisu	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 $Q_{28} = Q_{29} = 2$

Specifications for setting quality control Indicators Q_1 to Q_{29}

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
<mark>6</mark>	The original flag is set "1" (correct) and the value will be classified by MQCS as inconsistent, dubious,
_	erroneous or missing
<mark>7</mark>	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
·-	<u> </u>