Firmware Release Note

Equipment : RWC2010C, Digital Radio Tester

Revision History

Version	Date	Description
Version 1.051	05 June.2025	1. Fixed an issue where the RWC2010C would stop working when frequently switching between DAB, DRM, FM, and AM modes using the remote control for long periods. 2. Added DI (Decoder Identification) variable to FM RDS mode. It indicates different operating modes to switch individual decoders on or off and to indicate if PTY codes in the transmission are dynamically switched. 3. Added the DLS_CLEAR_CMD variable to the DAB PAD DLS channel to allow clearing the DLS displayed on the terminal. 4. Fixed an issue where changes to modulation parameters such as robustness mode, spectrum mode, etc. were not properly applied when changing MDI files in MDI mode. 5. Fixed an issue where Data channel files would not play in DRM mode.
Version 1.050	05 May.2025	1. In FM stereo mode, the FM deviation value of the CW tone was set to the value obtained by subtracting the pilot signal energy from the set value, but the FM deviation value of the CW tone has been improved to maintain the set value. 2. Added START_CU_MODE variable to allow selection of whether to automatically or manually sort Start CU values of each component in DAB. 3. Changing the sampling frequency has improved the problem of sound quality deterioration due to a sampling frequency mismatch when transmitting Wave files in FM mode. 4. The number of files displayed for each type was limited to 32, but has been increased to 256. 5. The problem where the Continuity index of MOT_Header does not increase and remains fixed when transmitting SLS Data has been fixed. 6. Fixed an issue where the PNG file size was set incorrectly in MOT_Header when transmitting SLS data.

		7. Fixed an issue where the Service component size information on the DAB INFO screen was not updated correctly.
		8. Fixed an issue where the length information of the MOT Header was set incorrectly when transmitting SLS data to the PAD channel in DAB.
		9. When Announcement Switching is executed in DAB mode, FIG0/19 and FIG0/26 were continuously sent to indicate the start and end of the Announcement, but this was modified to send only 5 seconds for the start and 2 seconds for the end.
		10. In DAB mode, FIG0/5, FIG0/9, FIG0/10, FIG0/18, FIG0/25, FIG1/0, FIG2/0, FIG1/1, FIG1/4, FIG1/5, FIG2/1, FIG2/4 and FIG2/5 were transmitted as fast as possible, but the transmission rate was improved to once per second on average.
		11. Fixed a bug where the transmission ID between the MOT directory and the MOT body did not match when transmitting EPG data in DAB mode.
		12. SPI and EPG were separated on the DAB data channel but were integrated into SPI.
		13. Added variables to allow editing of short/medium/long names of EPG programs on the DAB SPI Data channel.
		14. In the SLS data channel of DAB, there may be an issue where the MOT header is omitted and the MOT Body is transmitted when changing the content. Therefore, the SLS transmission scenario has been improved to reset and transmit again from the MOT header.
		15. There may be an issue with SLS in DAB where the tester hangs when changing contents. This has been fixed.
		16. In DAB mode, BWS and TPEG, which are no longer used in the data channel types, have been removed.
		17. Fixed a bug where the XPAD_DATA_LEN parameter was not applied in DAB mode.
		18. Changes the sampling frequency of the audio input AUX port to improve EXT audio mode quality.
		19. Added parameters to adjust RDS level and phase in FM mode.

		20. Added External Audio input function to FM/AM. This function modulates and transmits audio input through the audio input AUX port on the rear panel to FM or AM in real-time. 21. Fixed the bug where the Number of Objects value was set incorrectly in the MOT Header data for EPG in DAB. 22. Fixed a bug where only the PRBS data stream ID was transmitted when connecting audio stream and PRBS data stream to a service simultaneously in DRM.

Version 1.040	05 Oct.2024	1. Added remote command to set SLS content on the DAB PAD channel.
		   - CONF:DAB:COMPONENT:PAD_SLS_CONTENTS
		   - READ:DAB:COMPONENT:PAD_SLS_CONTENTS?
		
		2. FM Filter performance has been improved to remove spurious noise.
		
		3. It is improved to sync the audio phase when the left and right audio signal frequencies of FM Stereo are the same.
		
		4. For abnormal testing, the ASCTY, DSCTY, and APP_TYPE parameters are changed to editable.
		
		5. In the announcement test, when AN_SWITHC_TYPE is ALARM, the cluster ID was fixed to 255, but has been changed to allow editing for abnormal testing.
		
		6. In the announcement test, the ABNORMAL type is added to the AN_SWITHC_TYPE parameter to send two ASw flags (0 and 1).
		
		7. Added left/right audio separation measurement function to the audio analyzer.
		
		8. Added remote command to read audio separation result.
		   - READ:AUDIO:SEPARATE_L?
		   - READ:AUDIO:SEPARATE_R?
		
		9. Added parameter to determine whether to check AF CRC or not when transmitting MDI file
		
		10. Added remote command for MDI CRC Check
		   - CONF:ETI:CONFIG:AF_CRC_CHECK
		   - READ:ETI:CONFIG:AF_CRC_CHECK?
		
		11. SFN (Single Frequency Network) function was added to ETI/MDI mode. To test SFN, two RWC2010Cs are required, and the two units are connected with a data cable to provide the function of synchronizing in 0.1us units.

		12. The START_CU parameter has been added to DAB mode to allow users to change the start CU of a component.
		13. In DAB, a bug slowed down the FIG1/1 and FIG1/4 transmission rates as the number of services in the ensemble increased, and this has been improved.
		14. The Ethernet connection protocol has been improved to allow users to select between TCP and UDP.
		15. SI FIG ratio information has been added to the DAB INFO screen.
		16. When selecting DAB PAD as DLS, DRC was always turned on, but a parameter that can turn DRC ON/OFF was added.
		17. The function to extract content files stored in RWC2010C to a PC has been added.
		18. It fixed the bug where MDI files saved as short interleaving were not transmitted.
		19. The AM band's lowest frequency was changed from 150 kHz to 149 kHz.
		20. Added encrypted ETI/MDI file transfer function.
		21. The ECC (Extended Country Code) parameter has been added to the DAB Service to improve the ability to be set independently from Ensemble ECC.
		22. There was an issue where the remote control would occasionally stop working when using the UART port. It has been resolved.
		23. There was a problem where the length information of the label variable was not saved when saving and recalling settings, so the label was not transmitted properly.
		24. LCD operation stability was improved by changing the LCD Clock from 30MHz to 32MHz.
Version 1.030	30 Jan.2024	1. When transmitting content, the method changed from infinitely repeated reading from EMMC memory to transmitting by reading it only once and copying it to DDR memory.
		2. Fixed a content structure memory overflow bug that could cause unstable behaviour when transmitting RDS content.
		3. Displays the L-Band frequency range when the L-Band option is ON.
		4. Added the ability to download up to 5 EXT AMP cal data and select them in the GUI.

		5. Fixed the bug where the contents value was out of range after reset. 6. The FPGA DLL Clock was improved because it was unlocked very occasionally.

Version 1.020	30 Oct.2023	1. The EON_PTY parameter is added to signal to the receiver the start of a programme item carrying a NEWS, WEATHER or ALARM announcement in FM RDS.
		2. The DLS character set parameter was not initialized in DAB mode. The DLS function might not work correctly.
		3. Add the remote commands to read audio analyzer waveform data.
		    - READ:AUDIO:SCOPE_WAVE_L?
		    - READ:AUDIO:SCOPE_WAVE_R?
		    - READ:AUDIO:SPECTRUM_WAVE_L?
		    - READ:AUDIO:SPECTRUM_WAVE_R?
		4. Packet BER pattern data was changed to be the same as that of the R&S equipment.
		5. To prevent audio interruption when changing the mp2 content file, initialization of related system parameters is minimized.
		6. In FM Wave mode, audio distortion occurred due to an audio buffer index error, so this was improved.

Version 1.010	10 Aug.2023	1. In DRM mode, the OFDM window function was incorrectly applied, creating a spurious signal in the spectrum. This bus is fixed. 2. There was an issue with editing the dBuV power parameter. This bug has been fixed. 3. Fixed an issue where the signal was disconnected during DRM+ transmission. 4. Added quasi-peak detector function to Audio Analyzer. 5. Added Path_loss Parameter. 6. Added PKT_BER mode for DAB components. It sends packet data in an all-zero or all-one pattern. 7. One normal label on/off and one extended label on/off parameters are applied to all services and service components. It is separated into all services and service components for independent control.

		8. Add remote command for announcement support parameter. [CONF:DAB:FUNCTION:AN_SUPPORT, READ:DAB:FUNCTION:AN_SUPPORT?] 9. Added "FREQ_RANGE_EXT" parameter to the system screen to allow settings outside frequency specifications. 10. Change the name of the "POWER" parameter to "POWER [EXT AMP ON]" when the external AMP setting is ON. 11. Added the UTF_16 encoding parameter for the LABEL, DLS and TEXT. 12. Added parameter for remote command delimiter option to select delimiter among LF, LR, LF+LR. 13. Fix the bug in "CONF:SETUP:TESTER_MODE" remote command. It couldn't change between AM and FM modes 14. There was a memory overflow problem when adding more than 30 services to DAB Ensemble, so it was fixed. 15. The DLS tag information in DAB was set to an invalid value. It is Fixed. 16. The EON_AF parameter is set to an incorrect value in FM RDS. It is fixed. 17. There was a problem that the magnitude of the OFDM symbol changes during DRM+ transmission, so it was corrected.