

DAB DATA CHANNEL Test Solution

—————DATA CHANNEL TEST : SLS/EPG/SPI/DLS

Doewe Technologies Application Notes-007-V1.0

<http://www.doewe.com>

1. Introduction

2. SLS Test

The RWC2010C supports SLS testing using the PAD or packet data channel. You can download your own image files to the RWC2010C. The image files for SLS testing must be in PNG format and small in size. Some PNG files can be downloaded from RedwoodComm's file server using a PC program, or you can import your own.

2.1 SLS Test Using Packet Data Channel

The SLS packet data channel can be configured as a secondary component of an existing DAB service, as follows.

2.1.1 ENSEMBLE Overall Settings:

SERVICE_00

PRIMARY

SECONDARY_1

COMPONENT_00

COMPONENT_01

COMPONENT_00

MODE

— CONTENTS

DAB

any mp2 file

COMPONENT_01

MODE

— CONTENTS

SLS

peyto_lake.png (208 x 104)



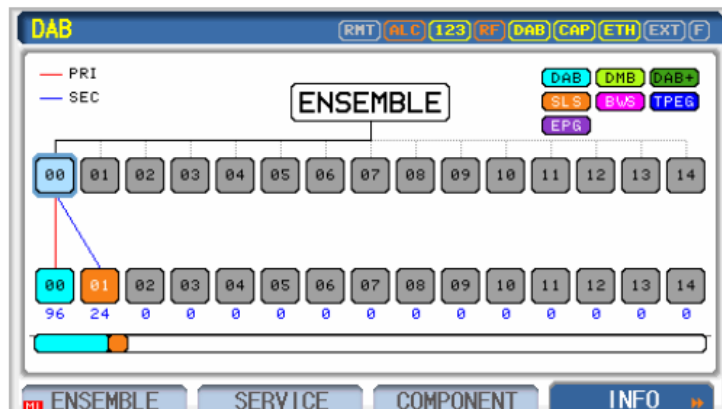
rwg_logo_240x160.png

rwg_logo_320x240.png

rwg_logo_480x320.png



2.1.2 INFO Interface Status:



[Ensemble Structure]

2.1.3 SERVICE Interface Settings:

The screenshot shows the 'SERVICE_00' view in the DAB software. At the top, there are buttons for RMT, ALC, 123, RF, DAB, CAP, ETH, EXT, and F. Below these, the settings for 'SERVICE_00' are displayed. The settings include: NORMAL_LABEL (ON), LABEL (REDWOOD SRV 0), CHAR_SET (EBU_LATIN), CHAR_FLAG (0xFF00), EXTEND_LABEL (OFF), PRIMARY (COMPONENT_00), and SECONDARY_1 (COMPONENT_01). A 'POP-UP' button is at the bottom. The bottom bar has buttons for ENSEMBLE, SERVICE, COMPONENT, and INFO.

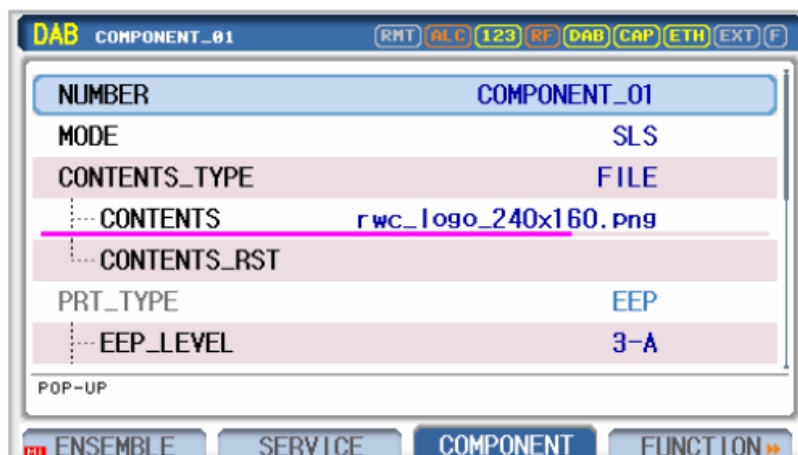
[Service 00]

2.1.4 COMPONENT 00 Settings:

The screenshot shows the 'COMPONENT_00' view in the DAB software. At the top, there are buttons for RMT, ALC, 123, RF, DAB, CAP, ETH, EXT, and F. Below these, the settings for 'COMPONENT_00' are displayed. The settings include: NUMBER (COMPONENT_00), MODE (DAB), CONTENTS_TYPE (FILE), CONTENTS (dab_linking.mp2), CONTENTS_RST, MP2_MODE (STEREO), and MP2_FS (48KHz). A 'POP-UP' button is at the bottom. The bottom bar has buttons for ENSEMBLE, SERVICE, COMPONENT, and INFO.

[Component 00 - DAB]

2.1.5 COMPONENT 01 Settings:



[Component 01 - SLS]

2.1.6 Notes:

1. Does your receiver support displaying images in the current format?
2. Does your receiver support EEP_BPS?

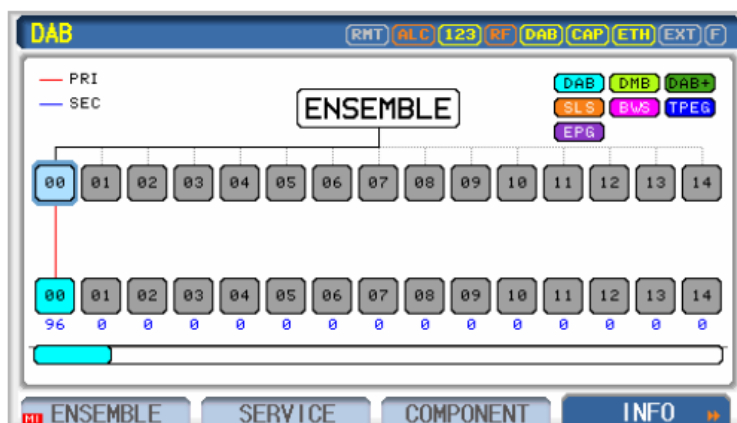
2.2 SLS Test Using PAD Mode

SLS using the PAD channel can be configured in the primary component, as follows.

2.2.1 ENSEMBLE Overall Settings:

SERVICE_00	
PRIMARY	COMPONENT_00
COMPONENT_00	
MODE	DAB
CONTENTS	any mp2 file
PAD_TYPE	SLS
CONTENTS	peyto_lake.png (208 x 104)
	rwc_logo_240x160.png
	rwc_logo_320x240.png
	rwc_logo_480x320.png

2.2.2 INFO Interface Status:



[Ensemble Structure]

2.2.3 SERVICE Interface Settings:

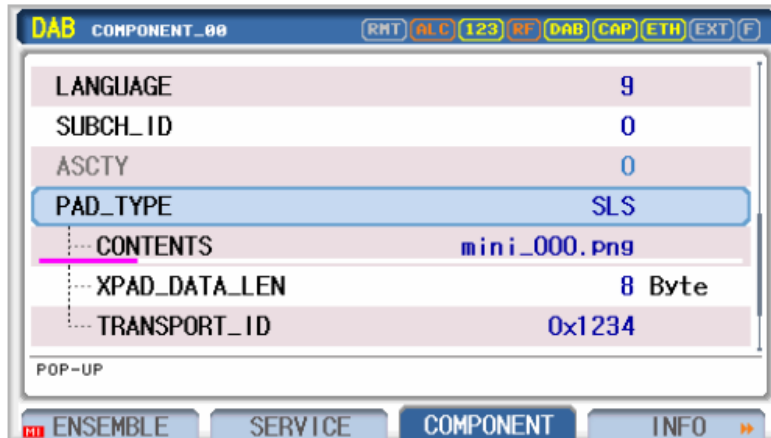
The screenshot shows the 'DAB SERVICE_00' interface. At the top, there's a header bar with buttons: RMT, ALC, 123, RF, DAB, CAP, ETH, EXT, F. Below this, the main area displays a list of settings for 'SERVICE_00'. The settings are: NORMAL_LABEL (ON), LABEL (REDWOOD SRV 0), CHAR_SET (EBCDIC), CHAR_FLAG (0xFF00), EXTEND_LABEL (OFF), PRIMARY (COMPONENT_00), and SECONDARY_1 (OFF). At the bottom of the settings list, there's a 'POP-UP' button. At the very bottom, there's a navigation bar with buttons: ENSEMBLE, SERVICE, COMPONENT, and INFO.

[Service 00]

2.2.4 COMPONENT 00 Settings:

The screenshot shows the 'DAB COMPONENT_00' interface. At the top, there's a header bar with buttons: RMT, ALC, 123, RF, DAB, CAP, ETH, EXT, F. Below this, the main area displays a list of settings for 'COMPONENT_00'. The settings are: NUMBER (COMPONENT_00), MODE (DAB), CONTENTS_TYPE (FILE), CONTENTS (dab_linking.mp2), CONTENTS_RST, MP2_MODE (STEREO), and MP2_FS (48KHz). At the bottom of the settings list, there's a 'POP-UP' button. At the very bottom, there's a navigation bar with buttons: ENSEMBLE, SERVICE, COMPONENT, and INFO.

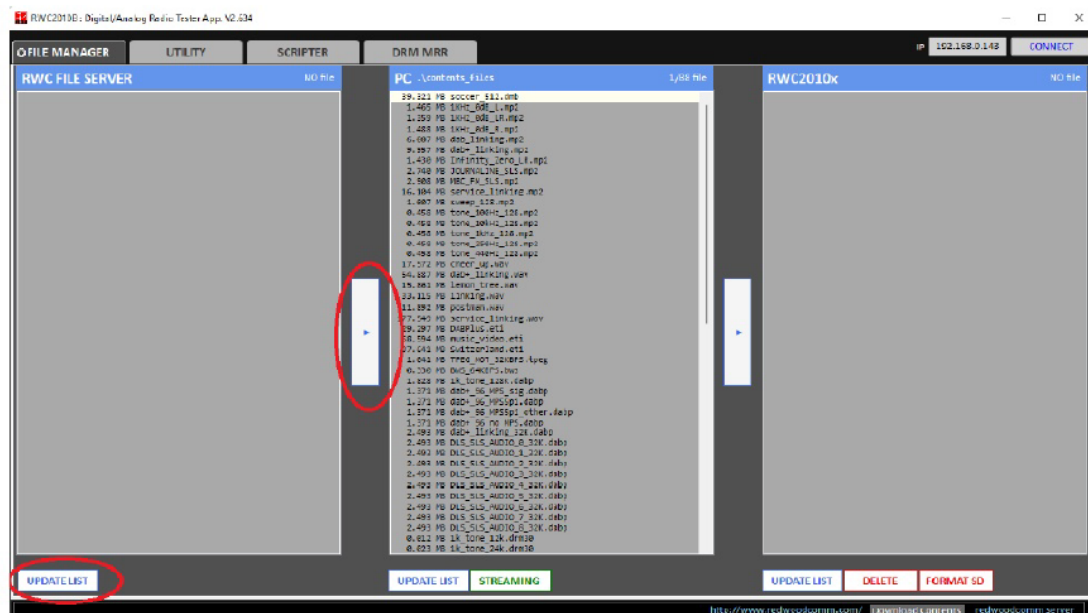
[Component 00 - DAB]



[Component 00 PAD - SLS]

2.3 Example of Downloading PNG Files Using a PC Program

To obtain example PNG files, run the RWC2010_utility.exe program and select FILE MANAGER. Then, click the update list icon to get the file list from RedwoodComm's file server in the lower-left corner. Select the files to download and click the download icon (the arrow button between the RWC FILE server and the PC).



3. EPG (Electronic Program Guide) Test

The RWC2010C supports EPG testing using the PAD or packet data channel. The start time and duration of programs can be edited in the RWC2010C GUI. Up to 10 program

schedules can be edited.

3.1 EPG Test Using Packet Data Channel

The EPG packet data channel can be configured as a secondary component of an existing DAB service, as follows.

3.1.1 ENSEMBLE Overall Settings:

SERVICE_00

PRIMARY	COMPONENT_00
SECONDARY_1	COMPONENT_01

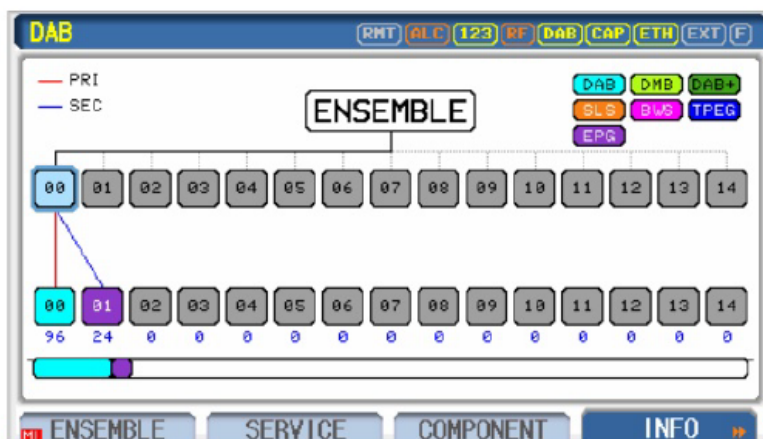
COMPONENT_00

MODE	DAB
CONTENTS	any mp2 file

COMPONENT_01

MODE	EPG
CONTENTS	(none; internally allocated)
EEP_BPS	32 KBPS

3.1.2 INFO Interface Status:



[Ensemble Structure]

3.1.3 SERVICE Interface Settings:

DAB SERVICE_00	
NORMAL_LABEL	ON
LABEL	REDWOOD SRV 0
CHAR_SET	EBU_LATIN
CHAR_FLAG	0xFF00
EXTEND_LABEL	OFF
PRIMARY	COMPONENT_00
SECONDARY_1	COMPONENT_01

PDP-UP

ENSEMBLE SERVICE COMPONENT INFO

[Service 00]

3.1.4 COMPONENT 00 Settings:

DAB COMPONENT_00	
NUMBER	COMPONENT_00
MODE	DAB
CONTENTS_TYPE	FILE
CONTENTS	dab_linking.mp2
CONTENTS_RST	
MP2_MODE	STEREO
MP2_FS	48KHz

PDP-UP

ENSEMBLE SERVICE COMPONENT INFO

[Component 00 - DAB]

3.1.5 COMPONENT 01 Settings:

DAB COMPONENT_01	
NUMBER	COMPONENT_01
MODE	EPG
CONTENTS	
PRT_TYPE	EEP
EEP_LEVEL	3-A
EEP_BPS	32 KBPS
NORMAL_LABEL	OFF

PDP-UP

ENSEMBLE SERVICE COMPONENT INFO

[Component 01 - EPG]

3.2 EPG Test Using PAD Mode

EPG using the PAD channel can be configured in the primary component, as follows.

3.2.1 ENSEMBLE Overall Settings:

SERVICE_00

PRIMARY

COMPONENT_00

COMPONENT_00

MODE

DAB

CONTENTS

any mp2 file

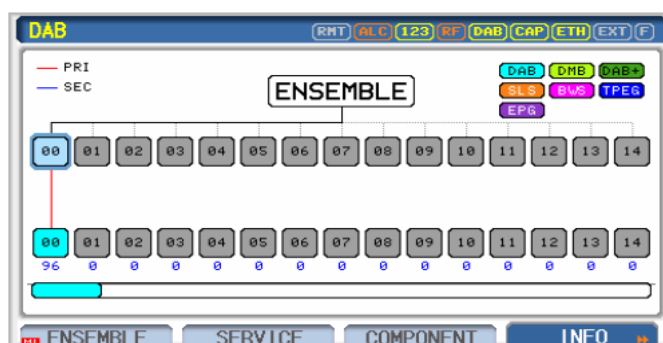
PAD_TYPE

EPG

CONTENTS

(none; internally allocated)

3.2.2 INFO Interface Status:

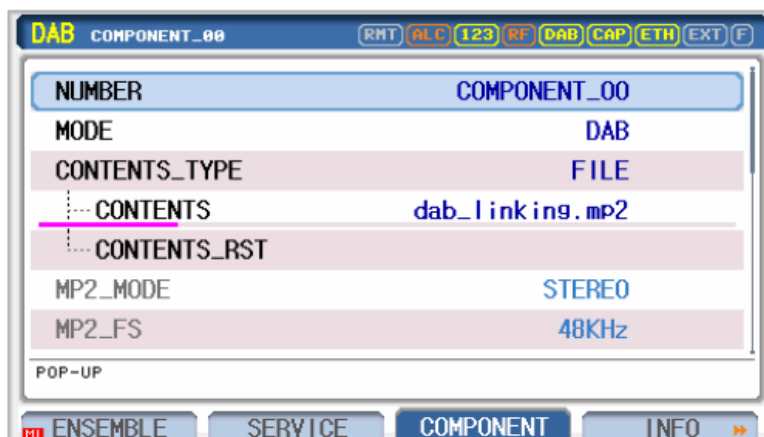


[Ensemble Structure]

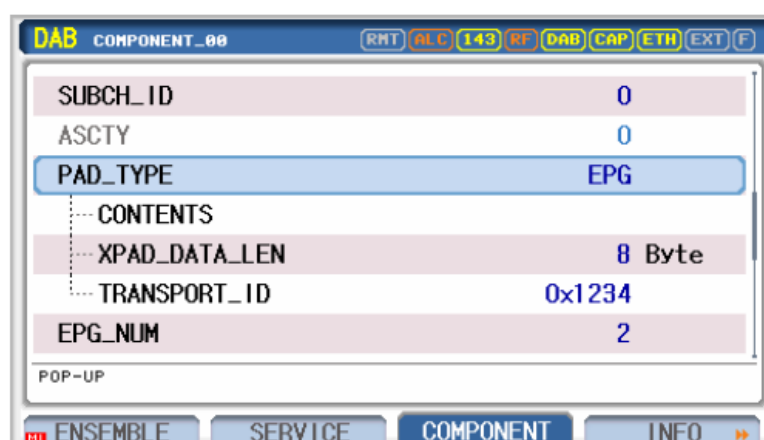
3.2.3 SERVICE Interface Settings:

[Service 00]

3.2.4 COMPONENT 00 Settings:



[Component 00 - DAB]



[Component 00 PAD - EPG]

4. SPI (Service and Project Information) Test

The RWC2010C supports EPG testing using the PAD or packet data channel. The program logo file is fixed as a RedwoodComm file, so users do not need to download the logo file. Some example PNG files can be downloaded from RedwoodComm's file server via a PC.

4.1 SPI Test Using Packet Data Channel

The SPI packet data channel can be configured as a secondary component of an existing DAB service, as follows.

4.1.1 ENSEMBLE Overall Settings:

SERVICE_00

PRIMARY

COMPONENT_00

SECONDARY_1

COMPONENT_01

COMPONENT_00

MODE

DAB

CONTENTS

any mp2 file

COMPONENT_01

MODE

SPI

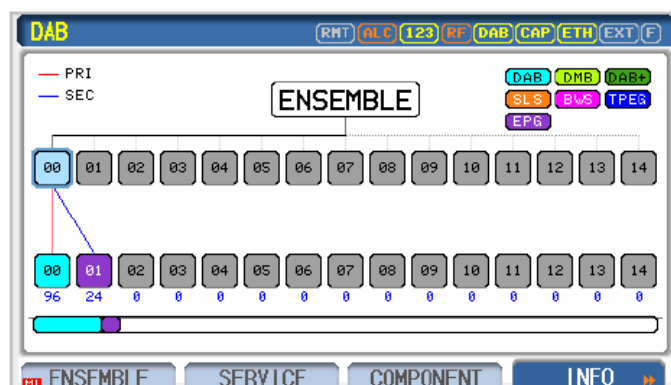
CONTENTS

(none, internally allocated)

ECP_BPS

32 KBPS

4.1.2 INFO Interface Status:



[Ensemble Structure]

4.1.3 SERVICE Interface Settings:

[Service 00]

4.1.4 COMPONENT 00 Settings:

4.1.5 COMPONENT 01 Settings:

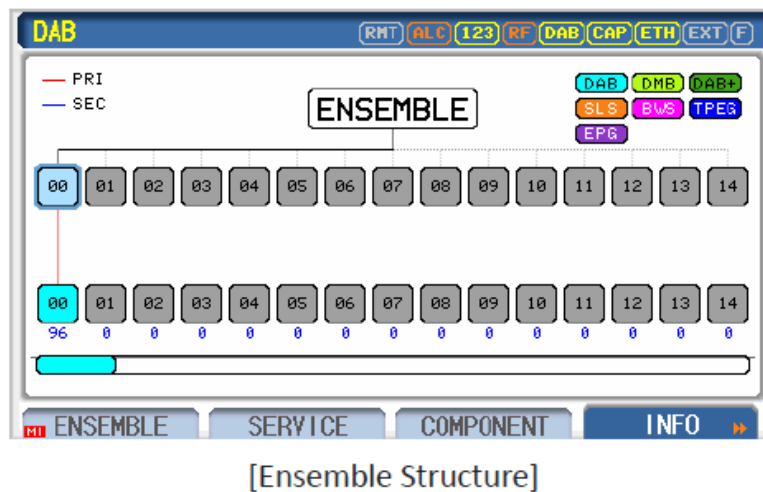
4.2 SPI Test Using PAD Mode

EPG using the SPI channel can be configured in the primary component, as follows.

4.2.1 ENSEMBLE Overall Settings:

SERVICE_00	
PRIMARY	COMPONENT_00
COMPONENT_00	
MODE	DAB
CONTENTS	any mp2 file
PAD_TYPE	SPI
CONTENTS	(none; internally allocated)

4.2.2 INFO Interface Status:



4.2.3 SERVICE Interface Settings:

DAB SERVICE_00 (RMT) (ALC) (123) (RF) (DAB) (CAP) (ETH) (EXT) (F)

NORMAL_LABEL	ON
--- LABEL	REDWOOD SRY 0
--- CHAR_SET	EBU_LATIN
--- CHAR_FLAG	0xFF00
EXTEND_LABEL	OFF
PRIMARY	COMPONENT_00
SECONDARY_1	OFF

POP-UP

MI ENSEMBLE SERVICE COMPONENT INFO >>

[Service 00]

4.2.4 COMPONENT 00 Settings:

DAB COMPONENT_00 (RMT) (ALC) (123) (RF) (DAB) (CAP) (ETH) (EXT) (F)

NUMBER	COMPONENT_00
MODE	DAB
CONTENTS_TYPE	FILE
--- CONTENTS	dab_linking.mp2
--- CONTENTS_RST	
MP2_MODE	STEREO
MP2_FS	48KHz

POP-UP

MI ENSEMBLE SERVICE COMPONENT INFO >>

[Component 00 - DAB]

DAB COMPONENT_00 (RMT) (ALC) (143) (RF) (DAB) (CAP) (ETH) (EXT) (F)

LANGUAGE	9
SUBCH_ID	0
ASCTY	0
PAD_TYPE	SPI
--- CONTENTS	
--- XPAD_DATA_LEN	8 Byte
--- TRANSPORT_ID	0x1234

POP-UP

MI ENSEMBLE SERVICE COMPONENT INFO >>

[Component 00 PAD - SPI]

5. DLS (Dynamic Label Service) Test

The RWC2010C supports DLS/DL+ testing using the PAD. DLS strings can be edited in the RWC2010C's GUI. It is recommended to use the RWC2010_utility.exe program for DLS editing as described in 4.2, which makes editing non-Latin text easier.

5.1 DLS/DL+ Test Using PAD Mode

The DLS/DL+ packet data channel can be configured as a secondary component of an existing DAB service, as follows.

5.1.1 ENSEMBLE Overall Settings:

SERVICE_00

PRIMARY

COMPONENT_00

COMPONENT_00

MODE

DAB

CONTENTS

any mp2 file

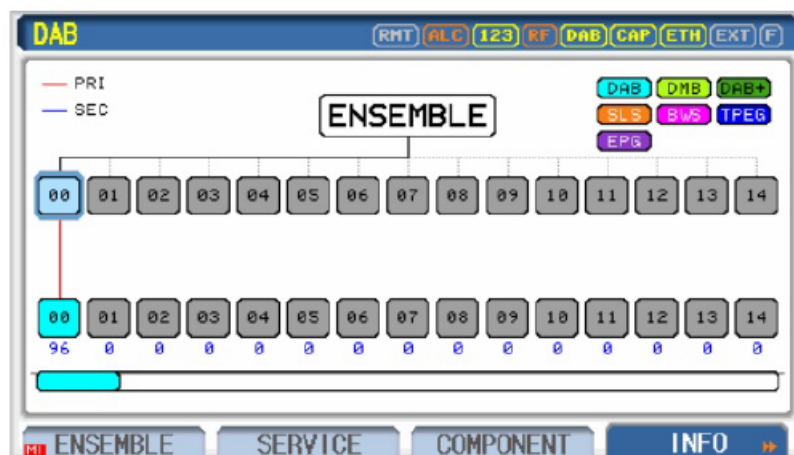
PAD_TYPE

DLS

DLS

Editable

5.1.2 INFO Interface Status:



[Ensemble Structure]

5.1.3 SERVICE Interface Settings:

DAB SERVICE_00 [RMT] [ALC] [123] [RF] [DAB] [CAP] [ETH] [EXT] [F]

NORMAL_LABEL	ON
--- LABEL	REDWOOD SRV 0
--- CHAR_SET	EBU_LATIN
--- CHAR_FLAG	0xFF00
EXTEND_LABEL	OFF
PRIMARY	COMPONENT_00
SECONDARY_1	OFF

POP-UP

[MI] [ENSEMBLE] [SERVICE] [COMPONENT] [INFO] >>

[Service 00]

5.1.4 COMPONENT 00 Settings:

DAB COMPONENT_00 [RMT] [ALC] [123] [RF] [DAB] [CAP] [ETH] [EXT] [F]

NUMBER	COMPONENT_00
MODE	DAB
CONTENTS_TYPE	FILE
--- CONTENTS	dab_linking.mp2
--- CONTENTS_RST	
MP2_MODE	STEREO
MP2_FS	48KHz

POP-UP

[MI] [ENSEMBLE] [SERVICE] [COMPONENT] [INFO] >>

[Component 00 - DAB]

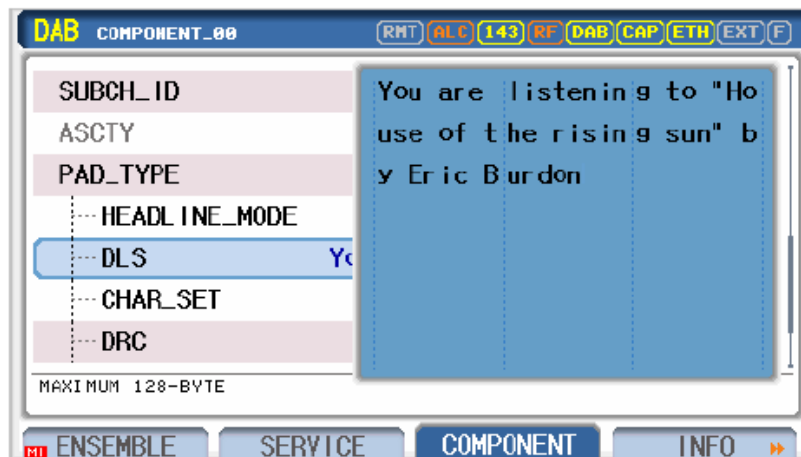
DAB COMPONENT_00 [RMT] [ALC] [143] [RF] [DAB] [CAP] [ETH] [EXT] [F]

SUBCH_ID	0
ASCTY	0
PAD_TYPE	DLS
--- HEADLINE_MODE	OFF
--- DLS	You are listening to .
--- CHAR_SET	EBU_LATIN
--- DRC	0.00 dB

POP-UP

[MI] [ENSEMBLE] [SERVICE] [COMPONENT] [INFO] >>

[Component 00 PAD - DLS]



[DLS Editor]

5.2 DLS Editing Using a PC Program

6. Introduction to Typical Test Instruments

For DAB CHANNEL testing, our company's RWC2010C device fully meets the requirements.



This device supports AM and FM analog modulation, as well as DAB/DRM digital modulation, and can output multiple FM signals simultaneously. It is particularly noteworthy that the device supports flexible baseband multiplexing, an industry-unique function, which enables stream-level multiplexing configuration for DAB and DRM, thus greatly enhancing test flexibility and efficiency. The device supports comprehensive DAB additional function testing, such as Seamless Linking (which may require other devices and software for testing) and DAB Announcement.

It should be noted that this device also supports the ETI stream-based testing method. For details, please refer to the RWC2010C product brochure and related materials, and feel free to consult our company by phone (010-64327909).

If readers need to test based on IQ-collected data streams, they can consider using the MP7600, which supports 16-bit depth and high-speed sampling, enabling almost distortion-free restoration of RF signals. In particular, its maximum real-time bandwidth of 100M can be used to record broadband signals simultaneously.