LUMANTEK

manual

DABAIR II Plus

DMB / DAB+ / DAB Field Monitor & Analyser

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Environmental Issues

Thank you for buying a product which contributes to a reduction in pollution and thereby helps save the environment.
Our products reduce the need for travel and transport and thereby reduce pollution. Our products have either no or few consumable parts (chemicals, toner, gas, paper). Our products are low energy consuming products.

Waste handling:

There is need to send material back to LUMANTEK. Please contact your local dealerfor information on recycling the product by sending the main parts of the product for disassembly at local electronic waste stations.

Production of products:

Our factories employ the most efficient environmental methods for reducing waste and pollution by ensuring that the products are recyclable.

OPERATOR SAFETY SUMMARY

For your protection, please read these safety instructions completely before operating the equipment and keep this manual for future reference. The information in this summary is intended for operators. Carefully observe all warnings, precautions and instructions both on the apparatus and in the operating instructions.

Equipment Markings

The lighting flash symbol within an equilateral triangle is intended to alert the user to the presence of un insulated "dangerous voltages" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock. The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions within literature accompanying the equipment.

Warnings

Water and Moisture :
Do not operate the equipment under or near water - for example near a bathtub, kitchen sink, or laundry tub, in a wet basement, near a swimming poor or in areas with high humidity. Cleaning - Unplug the apparatus from the wall outlet before cleaning or polishing. Do not use liquid cleaners or aerosol cleaners. Use a lint-free cloth lightly moistened with water for cleaning the exterior of the apparatus.

Ventilation :
Do not block any of the ventilation openings of the apparatus. Install in accordance with the installation instructions. Never cover the slots and openings with a cloth or other material. Never install the apparatus near heat sources such as radiator, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Grounding or Polarization - Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plus has two blades and a third grounding prong.
The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician. Power-Cord Protection - Route the power cord so as to avoid it being walked on or pinched by items placed upon or against it, paying particular attention to the plugs, receptacles, at the point where the cord exits form the apparatus.

Attachments :
Only use attachments as recommended by the manufacture.

Accessories :
Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

Lighting :
Unplug this apparatus during lightning storms or when unused for long periods of time.

ISDN cables :
CAUTION - to reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

Servicing :
Do not attempt to service the apparatus yourself as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty. Refer all servicing to qualified service personnel.

Damaged Equipment :
Unplug the apparatus from the outlet and refer servicing to qualified personnel under the following conditions
- When the power cord or plug is damaged or frayed
If liquid has been spilled or objects have fallen into the apparatus If the apparatus has been exposed to rain or moisture If the apparatus has been subjected to excessive shock by being dropped, or the cabinet

has been damaged If the apparatus fails to operate in accordance with the operating instruction

Warranty Period

Lumantek Test & Measurement and Broadcasting products normally carry a 1-year limited warranty (including labor and parts) Unless noted, Lumantek Digital Media products normally carry a 1-year limited warranty (including labor and parts).

Return Material Authorization Policy

No product may be returned directly to Lumantek without first contacting Lumantek for a Return Material Authorization ("RMA") Code. If it is determined that the product is defective, you will be given an RMA Code and instructions for product return for servicing or replacement. An unauthorized return such as where an RMA Code has not been issued, the product will be returned to you at your expense. Authorized returns are to be shipped prepaid and insured to the address on the RMA in an approved shipping container (original box and packaging materials or similar). To request an RMA Code, please visit on http://www.lumantek.com/support/rma_services_instruction.html

Warranty Limitations

Lumantek's limited warranty provides that, subject to the following limitations, each product will be free from defects in material and workmanship and will conform to Lumantek's specification for the particular product.

Limitation of Remedies

Your exclusive remedy for any defective product is limited to the repair or replacement of the defective product. Lumantek may elect which remedy or combination of remedies to provide in its sole discretion. Lumantek shall have a reasonable time after determining that a defective product exists to repair or replace a defective product. Lumantek's replacement product under its limited warranty will be manufactured from new and serviceable used parts. Lumantek's warranty applies to repaired or replaced products for the balance of the applicable period of the original warranty or ninety days from the date of shipment of a repaired or replaced product, whichever is longer.

Limitation of Damages

Lumantek's entire liability for any defective product shall in no event exceed the purchase price for the defective product. This limitation applies even if Lumantek cannot or does not repair or replace any defective product and your exclusive remedy fails of its essential purpose.

No Consequential or Other Damages

Notwithstanding anything else in this policy or otherwise, Lumantek will not be liable with respect to the products under any contract, negligence, strict liability or other legal or equitable theory (i) for any amount in excess of the purchase price for the defective product or (ii) for any general, consequential, punitive, incidental or special damages. These include loss of recorded data, interruption of use, the cost of recovery of lost data, lost profits and the cost of the installation or removal of any products, the installation of replacement products, and any inspection, testing, or redesign caused by any defect or by the repair or replacement of products arising from a defect in any product. This section does not limit liability for bodily injury of a person.

Your Use of the Product

Lumantek will have no liability for any product returned if Lumantek determines that:

The product was stolen from Lumantek.

The asserted defect:
- Is not present,
- Cannot reasonably be fixed because of damage occurring when the product is in the possession of someone other than Lumantek, or
- Is attributable to misuse, improper installation, alteration (including removing or obliterating labels and opening or removing external covers (unless authorized to do so by Lumantek), accident or mishandling while in the possession of someone other than Lumantek.

The product was not sold to you as new.
The product was not used in accordance with Lumantek specifications and instructions.
The product was not used for its intended function.

Additional Limitations on Warranty

Lumantek's warranty does not cover products which have been received improperly packaged, altered, or physically damaged.

DABAIR-II Plus

DMB / DAB+ / DAB Field Monitor & Analyser

By LUMANTEK

1. **DABAIR-II Plus /** INTRODUTION

1.1 / DABAIR-II Plus Option S/W

[Ordering Information]

Basic Frame	DABAIR-II Plus-1 Basic Software connected with one DABAIR-II Plus hardware module.	
Basic Option	SMC-EGPS-1	DMB/DAB+/DAB Field Monitor option with GPS
	SMC-ML-1	Multiple streaming options. Up to 7services(2 video, 3audio, 2data) Within 800kbps bit rate
Additional Frame	* Have to purchase each system separately and then DABAIR-II Plus Main GUI will show the purchased device details. DABAIR-II Plus-2 Basic Software connected with two DABAIR-II Plus hardware modules. DABAIR-II Plus-3 Basic Software connected with three DABAIR-II Plus hardware modules. DABAIR-II Plus Multi-system GUI Display Each system details will display like System1 and second module System2 and third module System3 in DABAIR-II Plus Main GUI. * Support multiple-systems with same DABAIR-II Plus GUI.	
Additional Option	SMC-EGPS-2 SMC-EGPS-3	* Have to purchase each GPS unit for each system separately to support multiple-system GPS streaming simultaneously. DMB/DAB+/DAB Field Monitoring with GPS for DABAIR-II Plus-2 Hardware module. DMB/DAB+/DAB Field Monitoring with GPS for DABAIR-II Plus-3 Hardware module.
	SMC-ML-2 SMC-ML-3	* Have to purchase each multiple streaming unit for each system separately to support multiple-system streaming simultaneously Multiple streaming support for DABIARIIPlus-2 hardware module Multiple streaming support for DABIARIIPlus-3 hardware module * Service streaming and limitations are same like first SMC-ML-1

[Single Play and Monitor Option] [* Multi-Player and Monitor Option]

SMC-PLA	T-DMB Audio, Video, Data Player option	SMC-PLA-ML	Multiple T-DMB Audio, Video, Data Player option
Optional Player	BIFS Player option TPEG Player option DAB+ Player option	Optional ML Player	BIFS Player option TPEG Player option DAB+ Player option
SMC-AM	Musicam /DAB+ Live Monitor option	SMC-BIFS	BIFS Data Live Monitor option
SMC-VM	MPEG Live Monitor (A/V) option	SMC-TPEG	DMB/DAB Live Monitor (A/V) option

SMC-DM	MOT/ Data Live Monitor option		
*ML options	:necessary when SMC-ML is ordered		

[Operation Environment of DABAIR-II Plus Basic S/W is as below table]

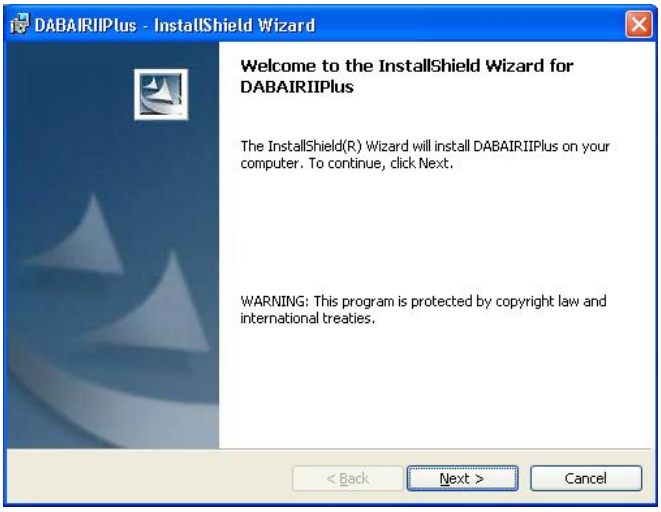
Item		Description
Platform		Laptop or Desktop PC
CPU	Minimum Specification	Over Intel Pentium 4 3.0GHz (Hyper Threading), RAM 1G
	Recommended Specification	Over Dual Core 1.83GHz, RAM 1G
OS		Windows 98, Windows 2000, Windows XP, VISTA

2. **DABAIR-II Plus /** How to Install

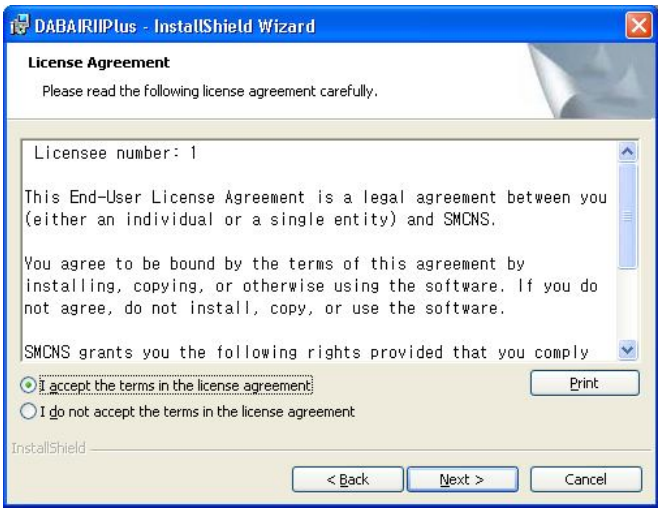
2.1 / S/W Components

Step 1. Put Install CD in CD-ROM and then run manually \\DABAIR-II Plus_SETUP folder\ DABAIR-II Plus.exe of Install CD

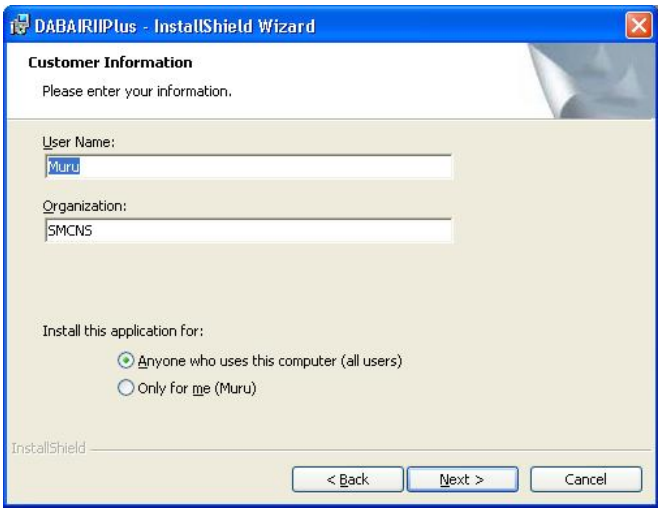
Step 2. Click 'Next' button when DABAIR-II Plus Installation wizard window is appeared.



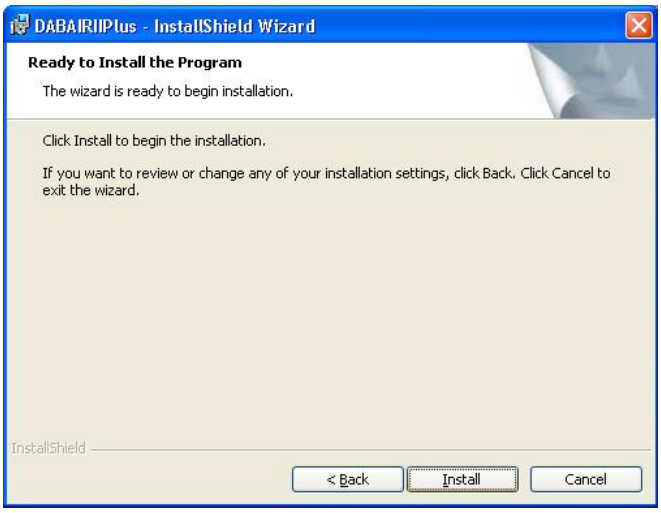
Step 3. If you agree with License Agreement, click 'Next' button to install.



Step 4. Enter User's information and then specify the group you will use.

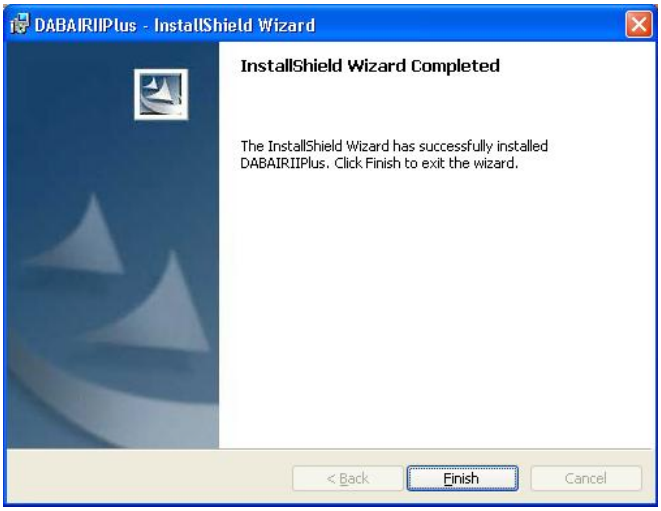


Step 5. Click 'Install' button on Install Shield Wizard window.



Step 6. When Device attach window is activated, click 'OK' button.

Step 7. After the installation is completed, click 'Finish' button. If device is connected, remove it first and then reconnect it.



Step9. Finally, the DABAIR-II Plus icon is created on your desktop and start screen.

Step10. Default folder is 'C:\Program Files\LUMANTEK\DABAIRIPlus'

2.2 / How to connect

DABAIR-II Plus receiver consists of Band III Antenna, L Band Antenna receiver body, USB Cable.

Step1. Associate SMA Type Band III Antenna or L Band Antenna with Antenna Input terminal of receiver body.

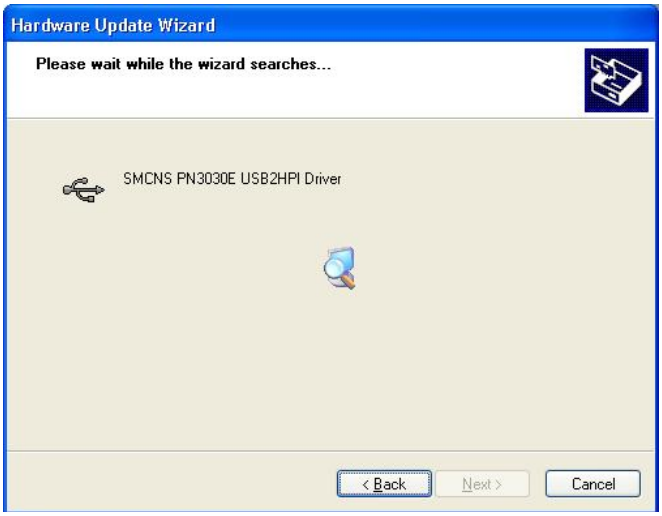
Step2. Associate USB Cable with receiver body and A laptop controlling S/W or with UBS terminal of your desktop PC

2.3 / USB Driver Installation

Be sure to install control S/W before connecting USB between receiver body and desktop PC.

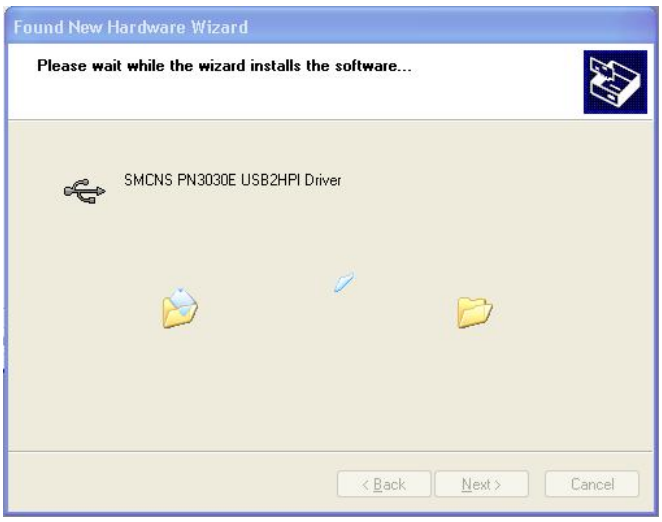
On Window operating system , connect DMB receiver. When 'New Hardware Search Wizard" is appeared, select 'Install software automatically (Typical)' and then click 'Next' button.

Click 'Next' button again to continue installing.

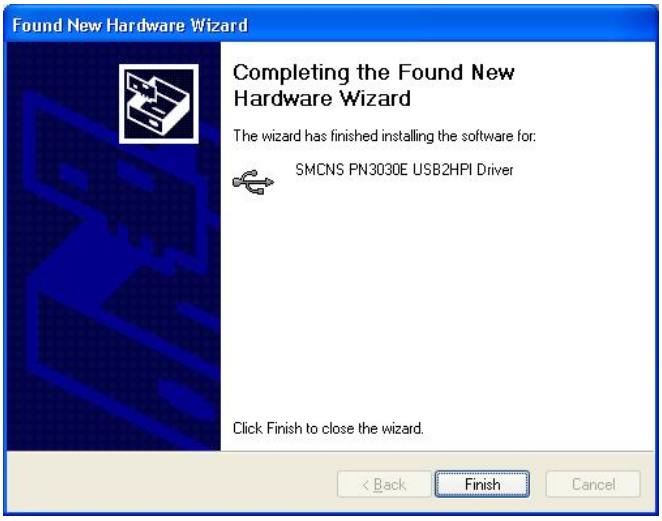


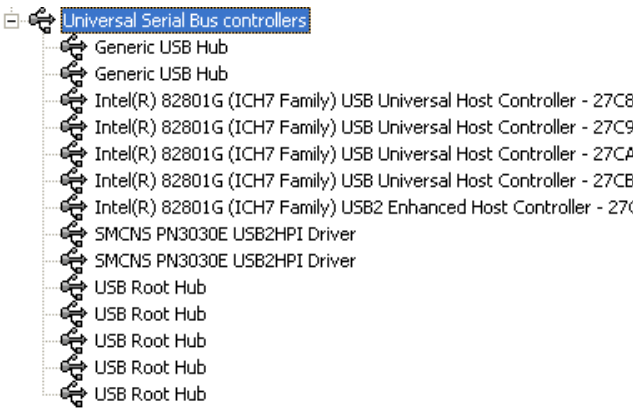
Click 'Continue (C)' button on Hardware installation window.

When the installation is completed, click 'Finish' button.



Check the installed Device Driver at 'my computer->management->device management' after completion of software installation





In the case USB error, remove device from a desktop PC and then connect it to USB Port again.

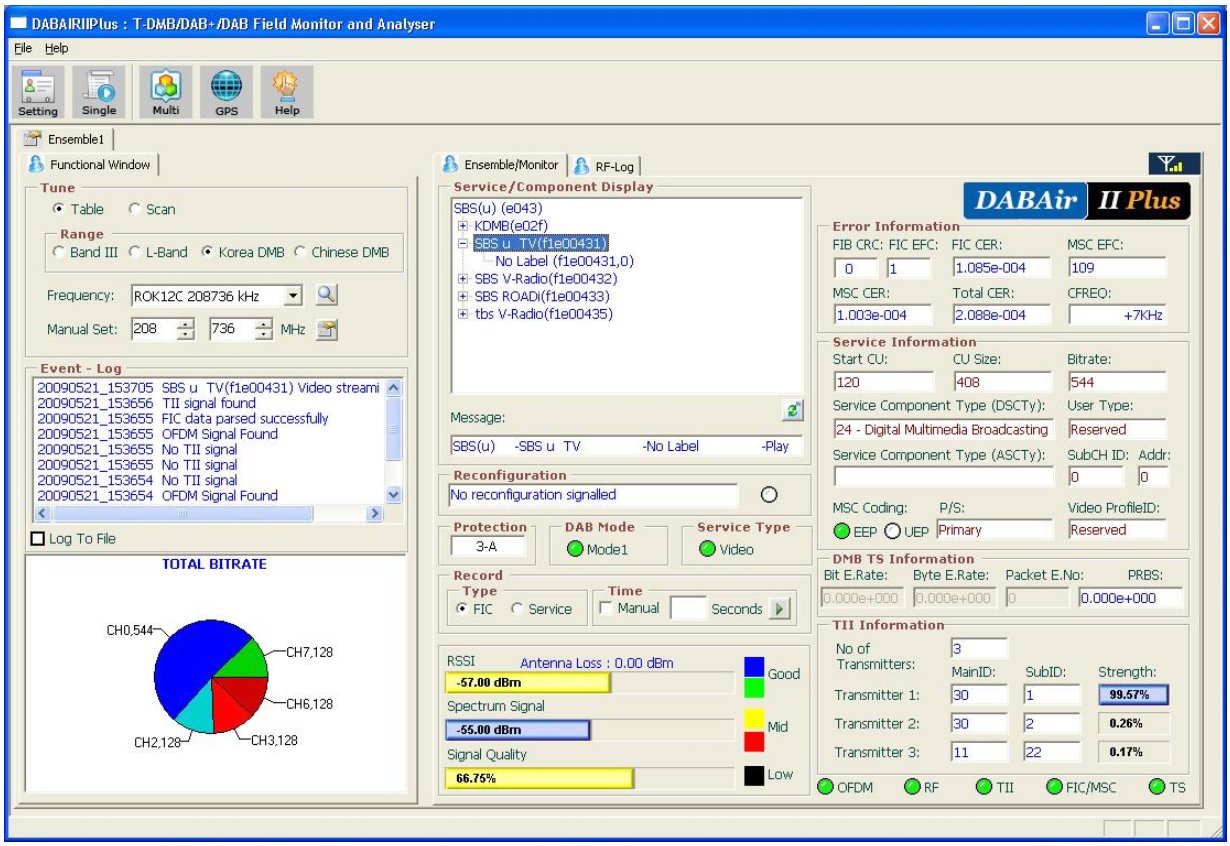
3. **DABAIR-II Plus /** Control S/W

3.1 / Activating DABAIR-II Plus Control S/W

Activate DABAIR-II Plus control software program installed on the desktop.
(C:\Program\LUMANTEK\DABAIR-II Plus\DABAIR-II Plus.exe)

The program will calculate the total number of connected DABAIR-II Plus Hardware Modules in the system and then main control GUI will display each device name like "Ensemble1" and second device "Ensemble2" and third device "Ensemble3" automatically.

Attached screenshots are shows that PC has connected with single DABAIR-II Plus -Hardware.



[(Fig. 3-1) DABAIR-II PLUS single hardware GUI screen]

DABAIR-II Plus Multi hardware system

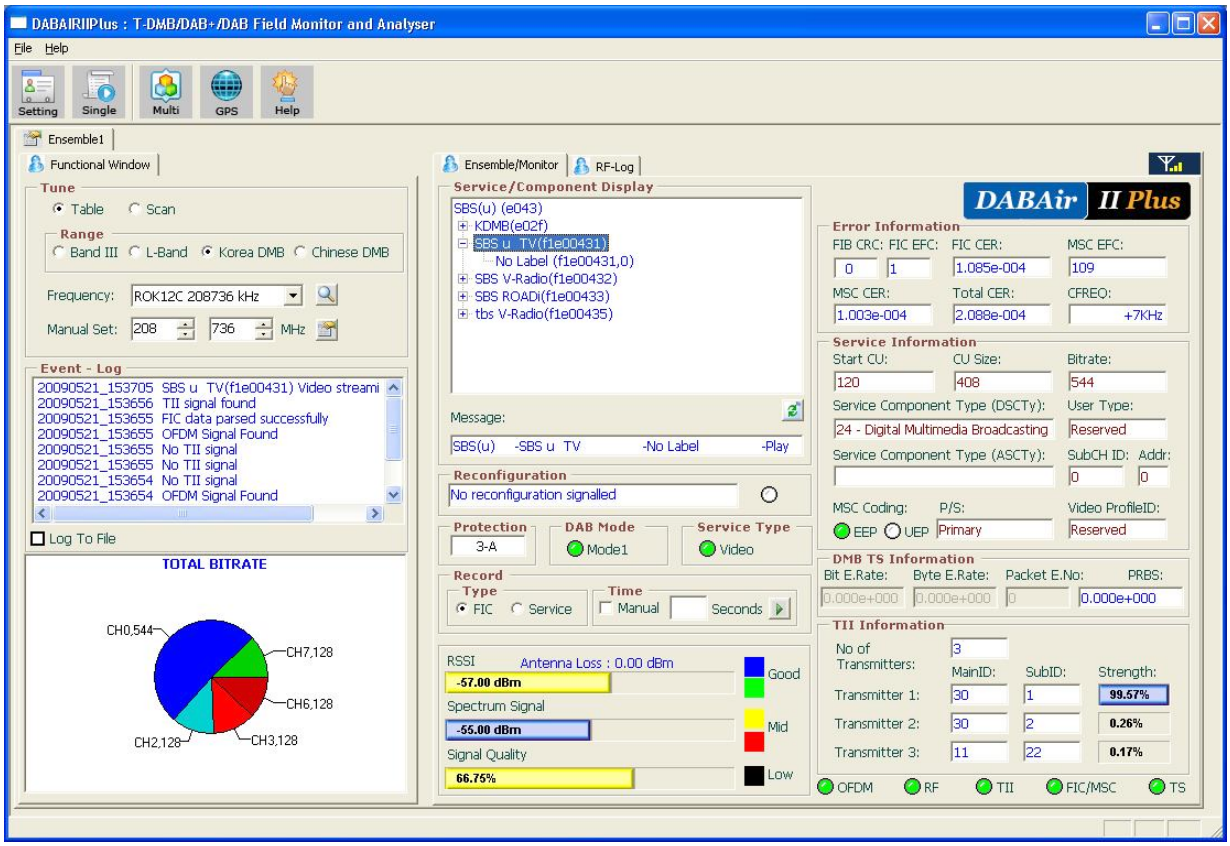
The attached screenshot shows that PC has connected with two DABAIR-II Plus hardware modules. Each System has separate settings/streaming/monitoring and RF/GPS logging support. The data's are saved as like below style under DABAIR-II Plus Folder.

Ensemble1

RF Logging Folder path C:\\DABAIR-II Plus\\Log\\Ensemble1\\RF\\12-02-2008\\
GPS Logging Folder Path C:\\DABAIR-II Plus\\Log\\Ensemble1\\RF\\12-02-2008\\
Registration details path (Options.cfg) C:\\DABAIR-II Plus\\Log\\Ensemble1\\Options.cfg

Ensemble2

RF Logging Folder path C:\\DABAIR-II Plus\\Log\\Ensemble2\\RF\\12-02-2008\\
GPS Logging Folder Path C:\\DABAIR-II Plus\\Log\\Ensemble2\\RF\\12-02-2008\\
Registration details path (Options.cfg) C:\\DABAIR-II Plus\\Log\\Ensemble2\\Options.cfg

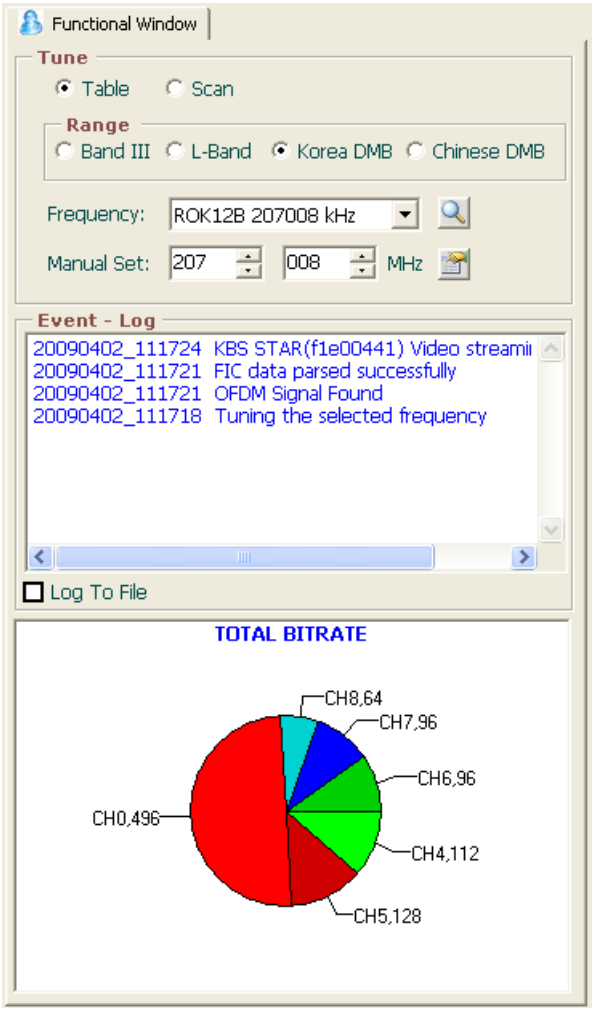


[(Fig. 3-2) DABAIR-II PLUS Multi hardware GUI screen]

3.2 / Total Pane & Description

3.2.1 Functional Window

Tune part : Divided into 2 parts, a part which tunes frequency and the part which records Service/ Component



1) 2 Service modes

[Table] Arranges the selected frequency of Range. After the selection of Table option, selects Range and the frequency you want to use on Frequency Combo Box. If you select frequency, it is set on Manual set.

[Scan] Searches the frequency of the selected Range and saves it.
If you click 'Scan' button next to Frequency Combo Box, Frequency is searched, displaying search progress bar.

2) Range menu :

Select one of Band III / L-BAND (Europe DAB Band), Chinese Band, Korea Band (T-DMB Band).

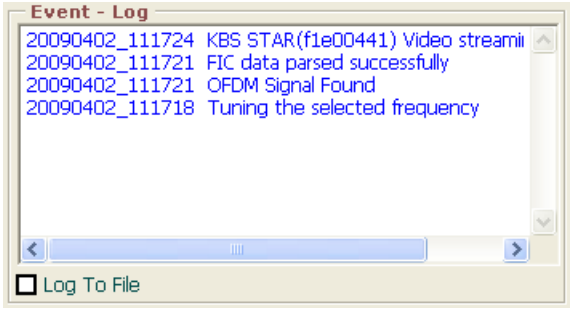
3) Frequency :

After setting Band, you can select channel of the Band. For example, if you select Korea Band (DMB), you can select one of 7A ~ 13C channel.

4) Manual Set :

If you know frequency, you can enter it by a MHz unit. The first part is a positive number and the other part is the below the decimal.
After setting frequency, double click service on tree. The screen is refreshed regularly and shows a value.

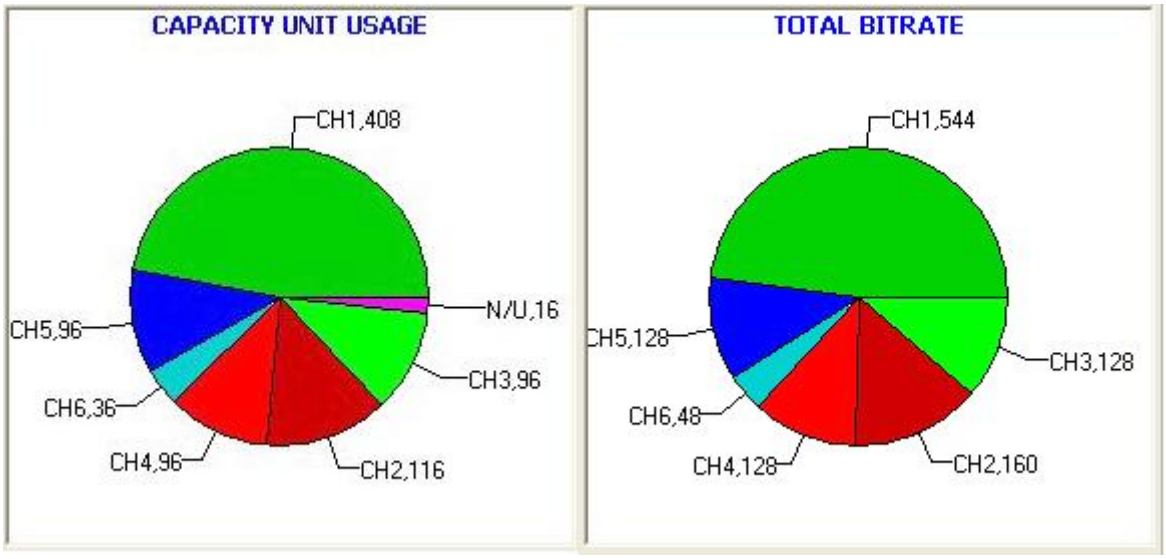
Alarm - Log :
This alarm part will show the major logging messages which end user process it with DABAIR-II Plus Software. (Ex: Tuning frequency, FIC display status, Single and Multiple service streaming, TII status)
*** Alarm Log check box will save this log contents into the file.**



Total Bit-rate or Capacity Usage :

This graph will show the selected ensemble service information details by graph. There are two types available 1. Total Bit-rate 2. Capacity Usage

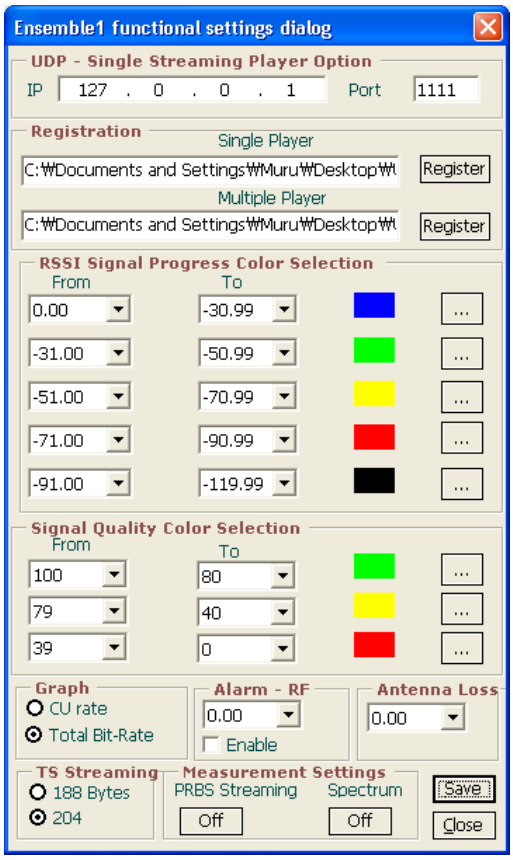
* End user can select either one from Functional Settings window. After selection it will change automatically in Functional window.



3.2.2 Functional Settings

Settings Dialog

Press this icon to see Ensemble settings window in Main GUI



[(Fig. 3-4) GUI Settings screen]

Type	Parameter	Description
Platform CPU	Channel IP/Port	Select IP/Port for single service playing/monitoring Default value is as below IP : 127.0.0.1, Port Port : 1111
	Registration	Select the location of the optional DXBPlayer Single player and Multi-player
	RSSI Signal Progress Color Select	For RSSI Signal Progress Color Selection. * End user can change different colors and values for their monitoring and analysis purpose.
	Graph Option	You can select either Total Birtate or CU usage
	Antenna Loss	To be informed signal information part
	Alarm Settings	You can select some value for the RSSI. Alarm signal and sound are occurred when RSSI value is under setting value
	TS Streaming	Type of TS streaming selection (Default : 188 Bytes) * can check TS uncorrected packet details only 188 bytes and not support 204 TS bytes mode.
	Signal Quality Color Selection	For Signal Quality color Selection. * End user can change different colors and values for their monitoring and analysis purpose.
	PRBS Streaming * Optional function	For enable/disable PRBS Measurement analysis function. On : Start the measurement monitoring Off : Stop
	Spectrum Interface *Optional function	To enable/disable the Spectrum analyzer interface measurement. On : Start the measurement Off : Stop There are three types of spectrum interface support available 1. GPIO 2. USB 3. LAN

Each DABAIR-II Plus connected system has separate saving folder and sample reference details are as below

Ensemble1

RF Logging Folder path C:\Program Files\LUMANTEK\DABAIR-II Plus\Log\Ensemble1\RF\16-02-2009

GPS Logging Folder Path C:\Program Files\LUMANTEK\DABAIR-II Plus\Log\ Ensemble1\GPS\16-02-2009

Registration details path (Options.cfg)

C:\Program Files\LUMANTEK\DABAIR-II Plus\Log\ Ensemble1\\Options.cfg

Alarm Logging Folder Path

C:\Program Files\LUMANTEK\DABAIR-II Plus\Log\ Ensemble1\Alarm\16-02-2009

3.3 / Ensemble and Service Monitor

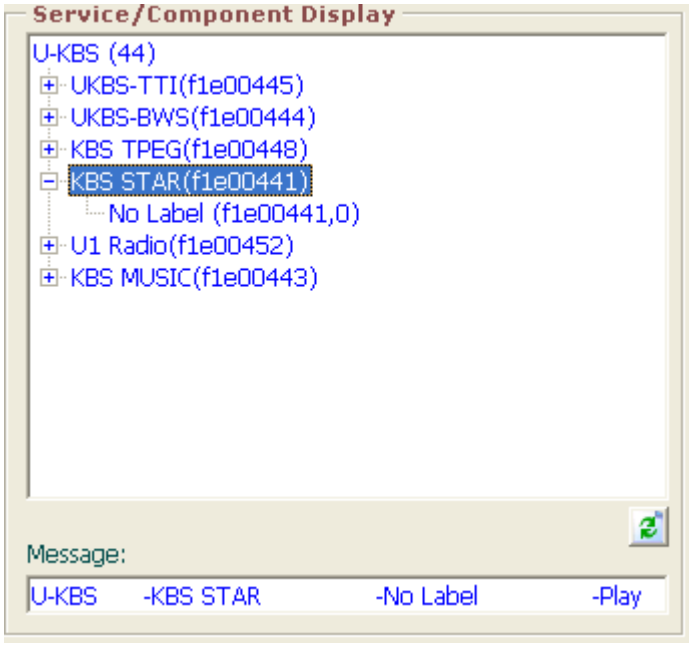
1) Service/Component part

❶ Service/Component :
After Frequency Tune, you can check Ensemble information and included Services and components as above picture. [Fig 3-2]

❷ Message:
This message contents have the selected services and components included in Ensemble.

❸ Alarm – LED Display

a. OFDM
This led has OFDM signal status. When signal is good then display Green LED otherwise Red.



[(Fig. 3-3) Ensemble Service display]

b. RF
This led will process based on Functional Settings RF Low signal input. If signal become higher then input then shows Green otherwise red.

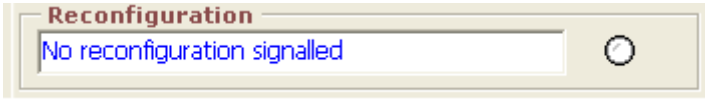
c. TII
This led will show the status of TII information. When there is no TII received from chipset then shows red led otherwise Green.

d. FIC/MSC
The led will process based on Functional Settings FIC/MSC input values. If FIC and MSC monitor values are high then shows Red and other Green LED.

e. TS
The led will show status of TS streaming part. When DMB Service was selected from ensemble then streaming process will start to send TS data from chipset. If receiving data is in good quality then shows Green LED. If TS sync measured by 500 ms period has an error more than 3 times, Red LED is displayed.

3.3.1 ❶ Reconfiguration

This edit control will show the reconfiguration that particular ensemble with relevant time period details.



❷ Protection

The level protection can be chosen between 1 to 5 for audio signal (generally the level used is 3) and between 1 to 4 for data or DAB+
In case of EEP coding, received value will be displayed one of following values. (1A, 2A, 3A, 4A, 1B, 2B, 3B, 4B)The displayed protection details for selected service from ensemble structure.

❸ DAB Mode

Type	Parameter	Description
DAB Mode	Mode I	For territorial(SFN) broadcasting
	Mode II	For territorial broadcasting
	Mode III	For satellite/cable transmission
	Mode IV	For territorial broadcasting

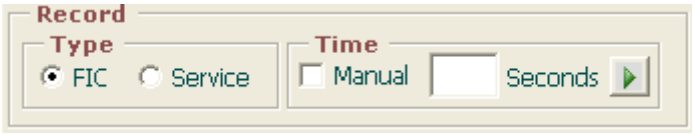
* Shows DAB Mode depends on what kind of ensemble service will be selected.

❹ DAB Mode

Type	Parameter	Description
Service type	Audio	Selected service is Musicam audio service or DAB +
	Video	Selected service is DMB A/V service or Visual Radio service
	Data	Selected service is packet mode data service such as TDC, MOT

* Shows Service Type depends on the service selected from ensemble tree structure.

❺ Record

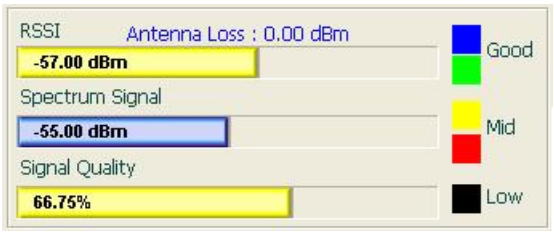


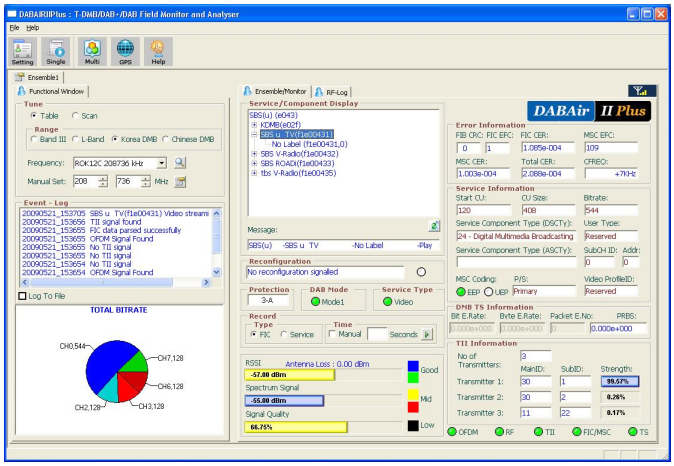
You can save Services and FIC data of the received DAB/DMB Ensemble. Record has monitoring Audio & A/V & Data Service function.
Each service provides simultaneously recording and monitor.

>> To record:

You can save the received FIC and Service data like mpg (Musicam audio, DAB+ service), ts (DMB A/V service), and data (NPAD data service, BWS). User can select either FIC or Service for recording.
Click 'Start' button after the selection of Type and then a dialog box appears, asking where to save the file. Click 'OK' to save it (no need to choose the service type because open dialog shows necessary save option). When it is saved, 'Start' button is turned to 'Stop' button. If you want to stop saving file, click 'Stop' button. It is also available to set Record Time manually by selecting 'Manual' box and specifying the saving time.

6 Signal/Error Information



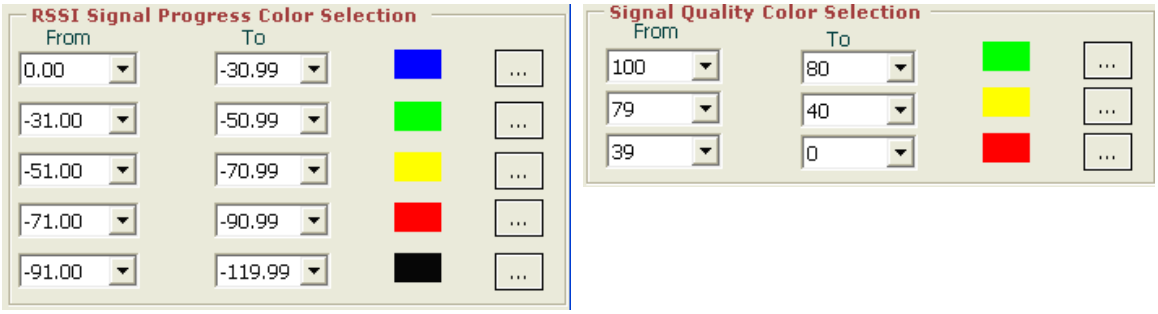


[(Fig. 3-3) GUI Signal/ANT Level Info screen]

Type	Parameter	Description
Signal Info	RSSI	Displays received Radio Signal Strength Information, 2 different type(Bar, Signal Antenna)
	Spectrum Signal	Display received signal from Spectrum analyzer. (Make sure that Spectrum analyzer measurement enabled in functional settings otherwise signal won't received it)
	Antenna Loss	Customer can compensate Antenna Loss (increase RSSI value) using this function – For Antenna Settings press Functional Settings dialog.
	Signal Quality	Display Signal Quality value using MSC CER. Minimum and Maximum values are 0 to 100%

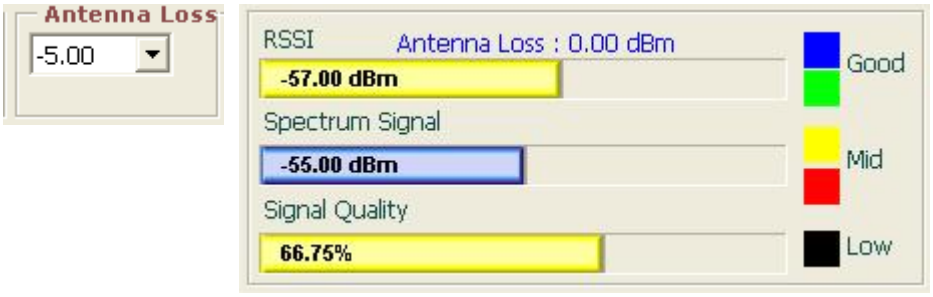
RSSI status

: Default color and value are as below and can changeable in Settings part.
Good: 0.00 dBm to -30.99 dBm, Blue -31.00 dBm to -50.99 dBm Green
Middle: -51.00 dBm to -70.99 dBm, Yellow -71.00 dBm to -90.99 dBm, Red
Low: -91.00 dBm to -119.99 dBm, Black
* End user can able to select their preferable RSSI & Signal Quality parameters and save it.



[Functional Window Dialog RSSI & Signal Quality Settings]

7 Antenna loss settings



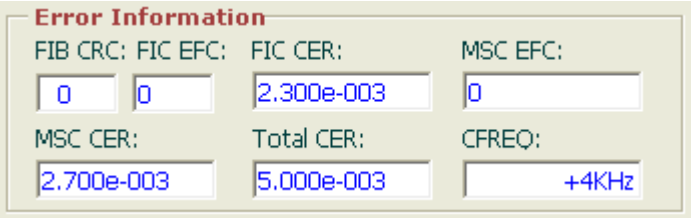
* Antenna loss input selection located in functional window Part.

8 Antenna loss settings

Signal level: To check the low signal led status in the Main GUI has to choose signal value from above part located in functional settings pane and then status will be displayed either Red or Green in the Main GUI Alarm-Led section and can able to hear the beep sound for low RF signal.

* To hear the beep sound has to select the enable check box.

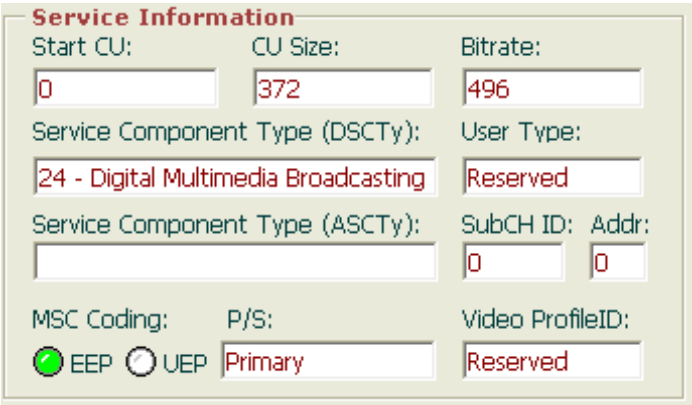
❾ FEC STATUS



Type	Parameter	Description
FEC Status	FIB CRC	The number of error per hour (1.2 sec., 150/ea FIB Block) * Max: 256 FIB Block Check available Below 255 is available by using 0x80 register control of FEC page
	FIC EFC	FIC channel error rate
	FIC CER	FIC EFC/10000
	MSC EFC	The number of MSC Channel error in specific CIF on selected sub-channel. *Max: 256 CIF, CIF=55296 bit CER monitoring of overall MSC unit and a sub channel.
	MSC CER	MSC CER=MSC EFC/specific CIF
	Total CER	FIC CER+MSC CER
	CFREQ	How much gap data has from Center Frequency?

3.3.2 SERVICE INFO

❶ Service Info

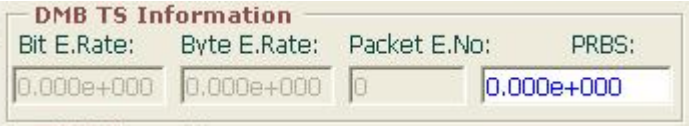


Type	Parameter	Description
Service Info	Start CU	Displays Start CU of selected service
	CU Size	Displays Capacity Units used for the service
	SubCH ID	Displays sub channel ID of selected service
	Address	Displays address information for packet mode service
	Bitrate	Displays a bitrate of selected service
	Audio Service Type(ASCTy)	000000 : Foreground sound 000001 : Background sound 000010 : Multi-Channel audio extension 111111 : DAB+
	User application type (UAtype)	0x000 : Reserved for future definition 0x001 : Not used 0x002 : MOT Slideshow 0x003 : MOT Broadcast Web Site 0x004 : TPEG 0x005 : DGPS 0x006 : TMC 0x007 : EPG 0x008 : DAB Java 0x009 : DMB 0x00a to 0x3ff : Reserved for future definition 0x44a : Journaline ® 0x44b to 0x7ff : Reserved for proprietary applications
	Data Type (DSCTy)	Display service type information 0 : Unspecified data 1 : Traffic message channel(TMC) 2 : Emergency Warning System(EWS) 3 : Interactive Text Transmission System(ITTS) 4 : Paging 5: Transparent Data Channel(TDC) 24 : MPEG-2 Transport Stream (DMB A/V Service) 59 : Embedded IP packets 60 : Multimedia Object Transfer(MOT) 61 : Proprietary service : no DSCTy signaled 62 Not used 63 Not used
	MSC Coding	Display coding value either UEP(Unequal Error Protection) or EEP(Equal Error Protection) *UEP; this can be set for each individual program or audio channel and protects the bits of higher importance within the channel. *EEP: this can be set for data channel as well as audio channel.

Type	Parameter	Description
Service Info	User Data Type	1. Audio : Provides profile ID information whether it is monoscopic or stereoscopic (3D Slideshow) on Slideshow. 2.Video : Displays profil e ID information whether audio encoding process is BSAC or AAC. (1) Profile 1 (MPEG 4 – BSAC) (2) Profile 2 (MPEG 4 – AAC V2)

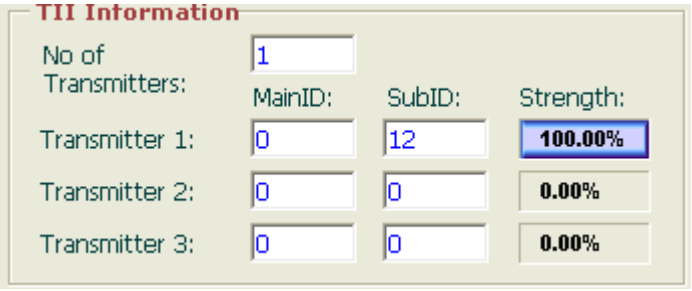
Service Info	User Data Type	3.BWS : Displays profile ID of designated BWS profile so far. - Basic Integrated Receiver Profile - Top News Profile - Baseline Profile - Intermediate Profile - Intermediate Profile - Mobile Profile - Unrestricted Profile

❷ TS INFORMATION



Type	Parameter	Description
TS Info (T-DMB A/V service)	Bit Error Rate	Displays Bit Error rate between the RS front and the back
	Byte Error Rate	Displays Byte Error rate between the RS front and the back
	TS packet Error	Measures and displays whether TS Packet error is corrected or not after RS decoding.
	PRBS	Display PRBS measurement calculated data. To get this data have to enable and settings are included in the functional window.

❸ TII INFORMATION : Shows Transmitter identification information



Maximum support 5 Transmitters information …

Type	Parameter	Description
TII info	No. of Transmitters	Shows received No. of Transmitter signal information.
	Transmitter 1	Shows first TII good signal status information. (Main ID, Sub ID, Signal Strength)
	Transmitter 2	Shows second good signal status information. (Main ID, Sub ID, Signal Strength)
	Transmitter 3	Shows third good signal status information. (Main ID, Sub ID, Signal Strength)

* DABAIR-II Plus TII Part GUI shows only 3 Transmitter information but 4th and 5th details are included in RF/GPS logging files.

1) Signal Strength Calculation Formula:

Inputs

1. Number of received transmitter signal from chipset.
2. Calculate total strength of received transmitter's values.

Calculation Method: {1St received transmitter Strength/total Strength * 100 to Nth value}

* TII Signal Strength maximum and minimum values are 100%, 0.00%

4 LED Status details

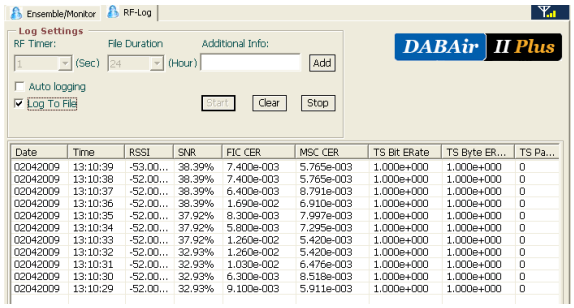
OFDM Status: Green is good, Red is OFDM failed.
RF status: Green is good and red is RF failed.
FIC/MSC status: Green is good and FIC/MSC is failed
TS status: Green is good and red is sync failed or non-video service.

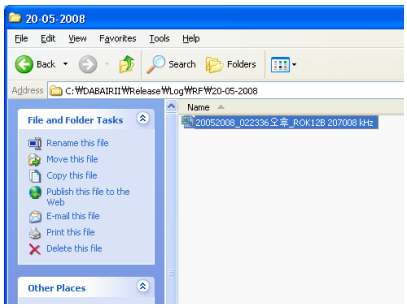
3.4 / RF Log

RF Logging setting option

This option will save RF log settings and starts the logging function automatically with last saved information. It consists (RSSI, Spectrum Signal, Signal Quality, PRBS,FIC CER, MSC CER, Total CER, TII information) and logged in CSV fie with respective folder.

* RF logging folder and CSV filename format will be depends on current date.





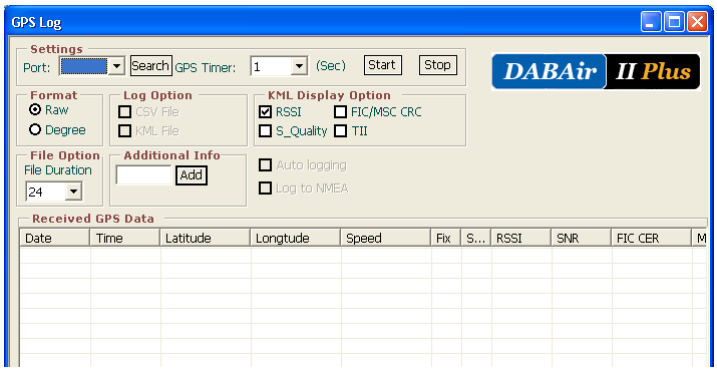
Type	Parameter	Description
RF Log	RF Timer	Select the RF logging display timer. Min is 0.5 sec, Max 10 Min. User selection data's displayed by sec.
	File Duration	Duration of generated RF logging file. Min 1 hour and Max is 24 hour. * RF logging folder will be generate automatically depends on current date.
	Additional Info	You can add some information with log data. (ex. : Location)
	Log to file	If you select this function, then log data automatically saved at DABAIR-II Plus folder and file name is as below; DDMMYYYY_HHMMSSTT_Frequency.csv (year, month, date, hour, minute, second)

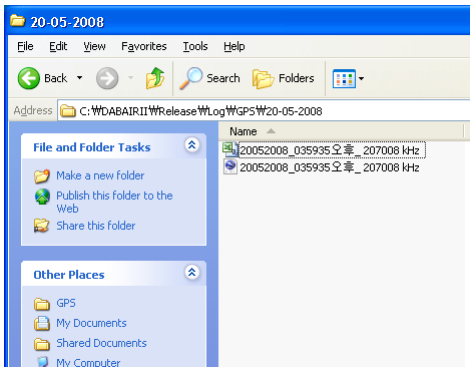
		Ex. Location of files C:\\Program Files\\LUMANTEK\\DABAIR-II Plus\Log\\20-05-2008\\20052008_022336 pm _ROK12B 207008 kHz
	File Entry	Maximum file entries of generated log file. (1000 to 100000 entries)
	Clear	This event will clear the log data showed in the screen automatically but saved data will be remaining in the HDD.
	Auto Logging	Once the program is activated, RF logging files are generated automatically.

3.5 / GPS Log

This option will save real time location details received from GPS receiver with RF log settings. Those details are saved through GPS logging function and then automatically logging from next time. It consists (RSSI, Spectrum Signal, Signal Quality, PRBS, FIC CER, MSC CER, Total CER, TII information) and logged in CSV fie with respective folder.

* GPS logging folder and CSV filename format will be depends on current date.

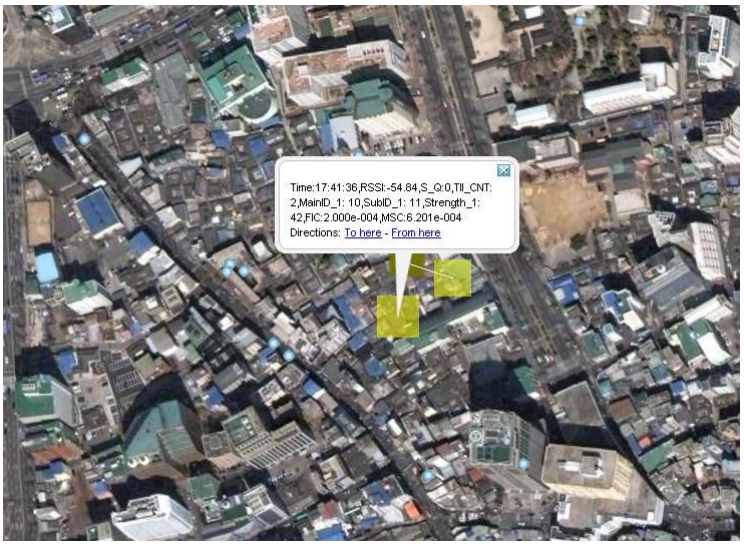




Type	Parameter	Description
EGPS	Port	Select connected GPS receiver port
	GPS Timer	You can select within 1 ~ 4 sec for log file time scale
	Start/Stop	Start : Connect GPS receiver Stop : Disable GPS receiver connection
	GPS Format	Raw : displays/saves NMEA-1813 location format Degree : displays/saves degree location format
	Log option	CSV : data is logged in CSV format * CSV file be used with excel application KVM : data is logged in KVM format * KVM file can be used with Google map
	Additional Info	Customer can add some information with log data. (For example : Location)

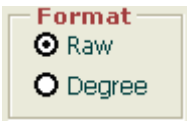
	Log to file	If you select this function, then log data automatically saved at DABAir II folder and file name is as below; DDMMYYYY_HHMMSSTT_Frequency.csv (year, month, date, hour, minute, second) Ex. Location of files C:\\Program Files\\LUMANTEK\\DABAIRII\Log\\20-05-2008\\20052008_022336PM_ROK12B 207008 kHz
	Clear	The log data is disappeared on the screen The saved log data is not deleted.
GPS Log	File Duration	Duration of generated RF logging file. Min 1 hour and Max is 24 hour. * RF logging folder will be generate automatically depends on current date.
	File Entry	Maximum file entries of generated log file. (1000 to 100000 entries)
	KML Display Option	Selected option details will be including in the generating KML File.

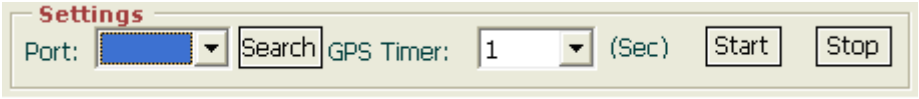
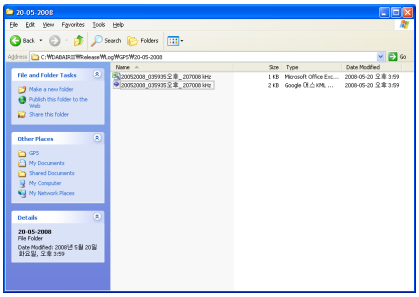
* KML file: GPS location information, additional index, RSSI value display, TII, Signal Quality, FIC/MSC details.



[Ex. Google MAP]

* Saving GPS Data
- First, connect GPS receiver to computer and then install GPS Program.
(\ LUMANTEK Program \ GPS_USB Driver \ PL-2303 Driver Installe98&2KXP.exe)

Type	Parameter	Description
Step 1.	Select GPS Format (Raw or Degree) Raw: display raw data converted from NMEA data. Degree: Applied degree conversion formula to supports Google and third party software.	
Step 2.	Select Log Option Ex). Google Map Interface file – KML File Ex). CSV data file – excel sheet Logging Option File Duration: Generating CSV & KML file duration setup.	

		
Step 3.	Select port on 'Settings' window. (There is only a virtual port) Ex) COM 5, 1(Sec) and press start button important ! If "COM Port" is not displayed, connect GPS receiver then press search button. 	
Step 4.	The Data is saved as following folder: " C:\Program Files\LUMANTEK\DABAIR-II Plus\System1\\Log\\20-05-2008\\ " * Logging data will be stored under System folder.	

4. **DABAIR-II Plus /** Single Player

4.1 / Activating Single Player S/W

Setting Up:
Step1. Double-click Single-Player Link Icon or activate the program
Step2. The Player S/W program is activated as below picture.

4.2 / Menu & Description

4.2.1 Single Player GUI

Open File
Click this button to open file.

Monitoring Window
Checks MOT Service, DLS Service, TDC and Monitoring window.

[(Fig. 4-1) T-DMB Player screen

Recording
Start: Click button to open 'Save As' window.
Stop: Click button to stop Recording.

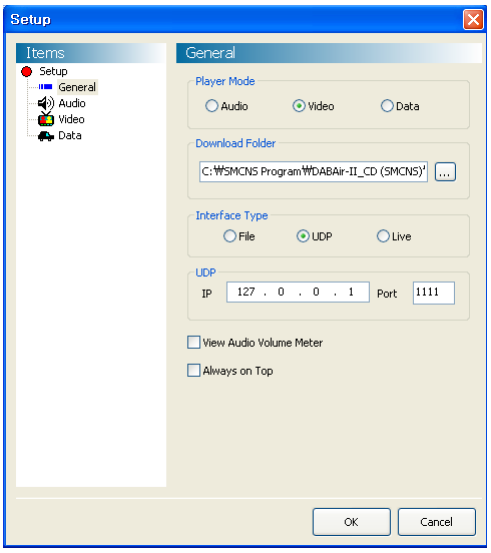
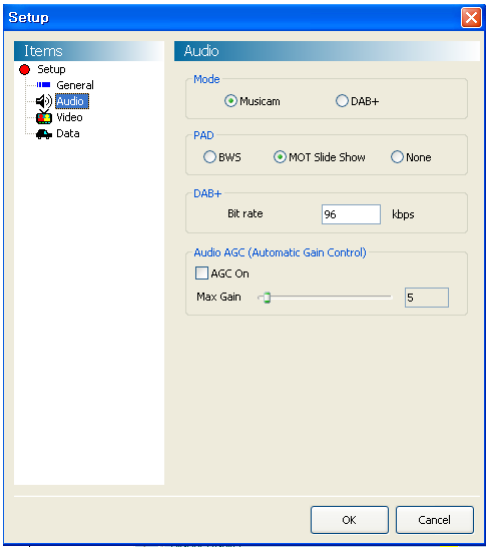
Setup
Sets Service mode (file, live), IP/Port, Monitor Bright.

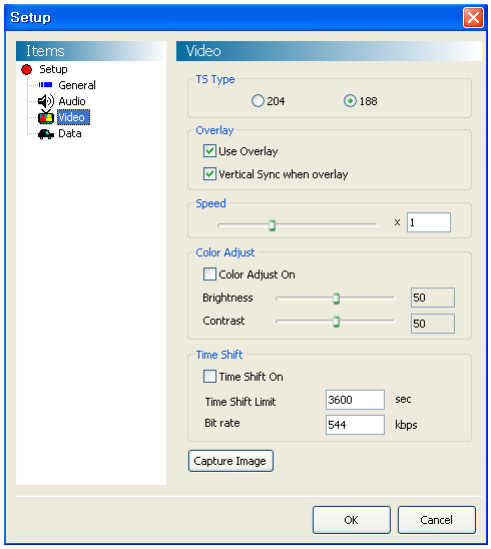
Version
Double click version number of the below of Player skin and then check Player version and lock-key information.

Channel Search (NO USED)
Searches channel and creates a list of searched channels.
*For SDK version purpose only

(1) Setting up Option

It is the same Player mode with DAB INFO. Set up UDP IP/PORT as setting up UDP loop back of DABAir-II program. If you select the one of 3 Player modes, the services of the other Player modes turn disabled.

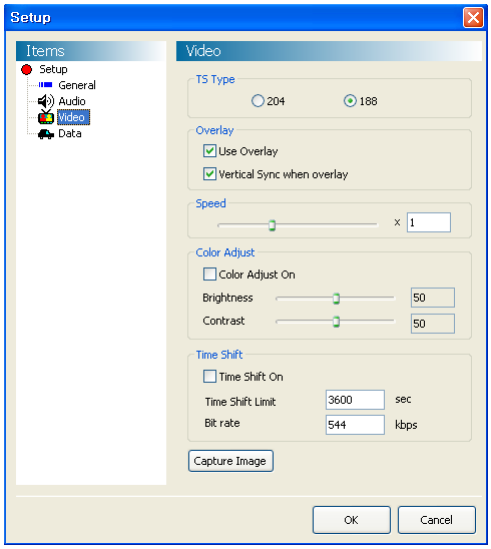
MODE	Item	Description
\General] 	1) Player Mode	Sets Player mode
	2)Download Folder	The location of Record /Save File store (Possible to change)
	3)Interface Type	Sets File/UDP/Live. a. File - Select to open the saved File. b. UDP - Select to receive On-Air(Live) c. Live - Disable
	4) View Audio Volume Meter	Decide if Audio Meter L/R is displayed or not.
	5) Always on Top	Player is always situated on top.
\Audio 	1) Mode	Select Musicam or DAB+
	2) PAD	Select BWS or MOT SLS Service or None. (DLS is fundamentally activated)
	3) DAB+- Bit rate	Only for DAB+ Mode, Service you try to play must be adjusted to Bitrate. (Musicam – Automatically set up)
	4) Audio AGC	Select AGC On/Off and GAIN



\Video

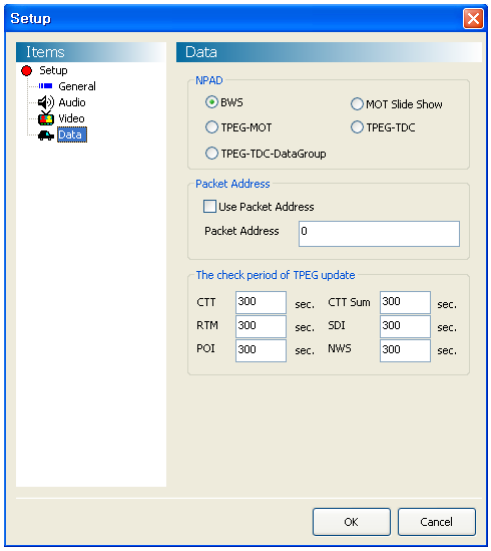
1) TS Type	Select '188' The default value of Player is 204.
2) Overlay	Use 'Overlay' for the high-definition picture
3) Speed	Check saved frame and set speed by moving a cursor.
4) Color Adjust	Control contrast/brightness of player by moving a cursor.
5) Time Shift	
5-1) Time Shift	Frame is saved for the time of Time Shift.

\Video

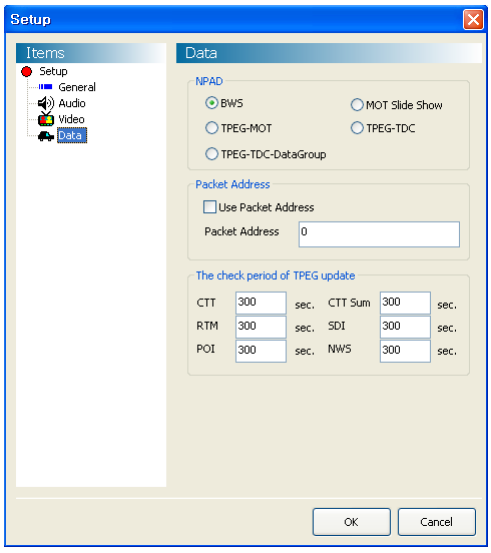


5-2)Bitrate	After completion of set up, color of a slide bar of Player turns green. Service you try to play must be adjusted to Bitrate.
6) Capture Image	File can be captured and they are saved on Download Folder.

\Data



1) NPAD - BWS - MOT Slide Show - TPEG-MOT - TPEG-TDC - TPEG-TDC-Data group	Select Service you want to Play Ex.) MBC/SBS TPEG -> TPEG-MOT KBS TPEG ->TPEG-TDC-Data group
2) User Packet Address	Select data service you want of same services when several data services are transferred to different address.

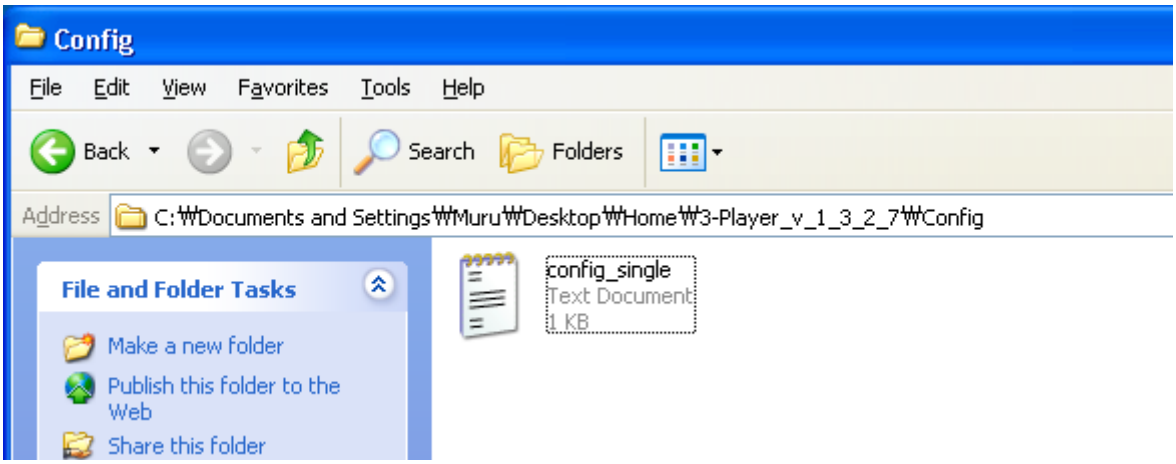
\Data 	3) The check period Of TPEG update	Set TDC data save period.

4.3 / Automatic Real-time DMB broadcasting & monitoring

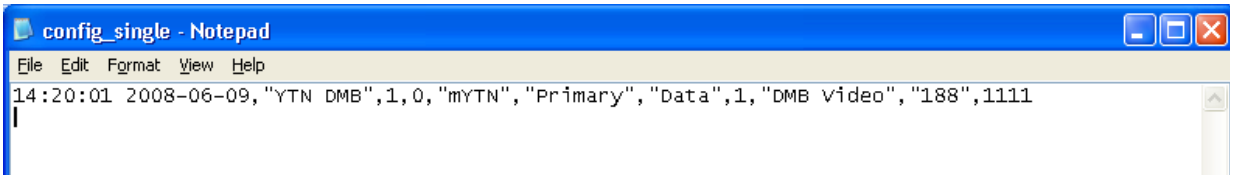
4.3.1 DABAIR-II Plus Control S/W Settings

Step1. Select Ensemble frequency you want to receive in DABAIR-II Plus control S/W (Refer to the 3rd chapter)
Step2. Select one out of the services included in the streaming Ensemble. (Double click the mouse for streaming selection)
Step3. Automatically generates streaming configuration file in the specified Player directory.
Step4. Start the Streaming Player.
Step5. Player starts streaming automatically once received playing request from DABAIR-II Plus Control software.
Step6. End user can see changed ensemble service automatically without any changes in the player.

1) Ensemble streaming configuration setup for single player …



2) Sample Configuration file …

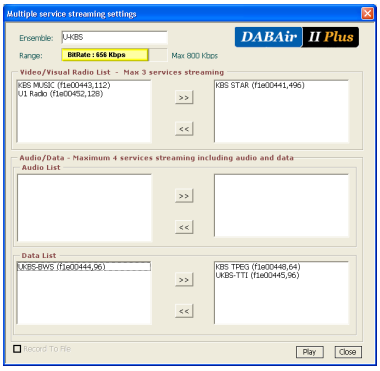
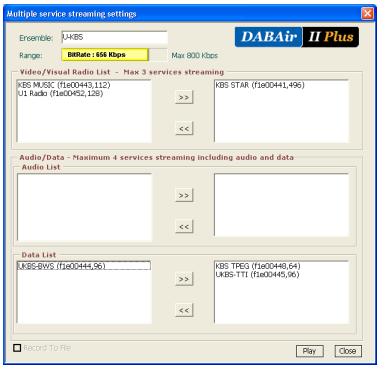


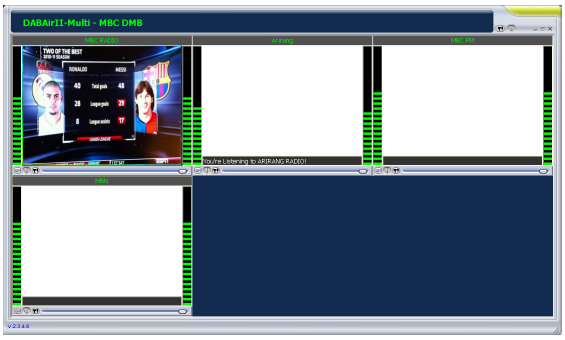
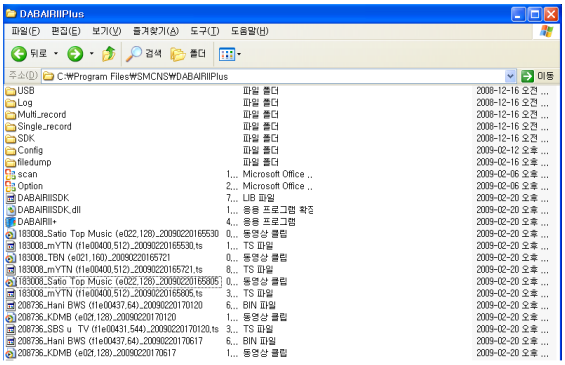
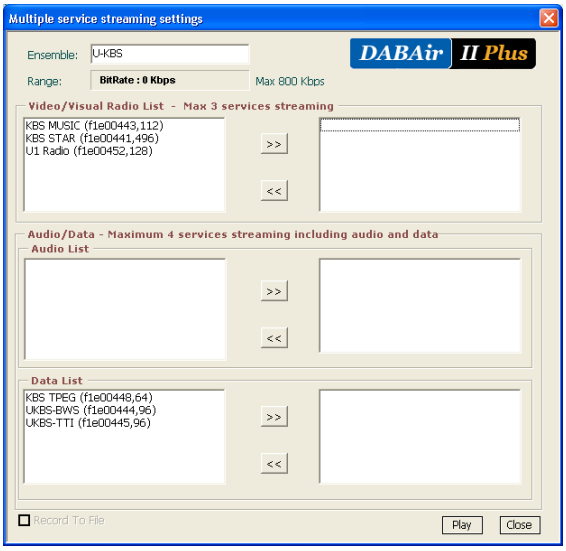
5. DABAIR-II Plus / Multi-Player (*Optional)

5.1 / Activating Multi-Player S/W

Setting up:
Step1. Click Multi-Player Link Icon to activate the program.
Step2. Player S/W is activated as below picture

5.1.1 Execution Sequence of Multi-Player

No.	Description	Screen
Step 1.	Multiview Settings – Initial display Do not allow Bitrate to be over 800Kbps. BitRate Range: BitRate : 752 Kbps Range (Kbps) Coler Bar 0 to 500 Green 501 to 750 Yellow 751 to 800 Red * Left side list box shows available Video/Audio/Data services for multi-playing mode.	
Step 2	Multiview Settings – Service Selection Single-Multiple service selection • End user can use double-click ensemble service for playing as well as remove from the play list. • To move multi-services you want to play is required to select services first and then press >> button • To restore multi-services on the right side to the left side is required to select services first and then press << button.	
Step 3	Multiview Settings – Play To play selected services in the play list is required to press play button. * Multi-player registration has to done before otherwise player can't open when you press this button.	

Step 4	Multiview Player After the completion of channel selection, The player is activated as the right picture	
Step 5	Multiview Settings – Record - Select " Record To File " on the lower left side 	Recording data location C:\\Program Files\\LUMANTEK\\DABAIR-II Plus 
Step 6	Multiview Settings – Stop To stop the playing services is required to press stop button. After that play list will be reset automatically.	

5.2 / Menu & Description

5.2.1 Multi-Player Screen

Service Settings

Sets Service Type, Data type and IP/Port as Manual

ETI Channel Settings

You can select manual or automatic channel selection, the check period of TPEG update and etc.,

[(Fig. 5-1) Multi-Player screen]

Monitoring

Checks monitoring window which checks MOT Service, DLS Service, TDC information.

Mute

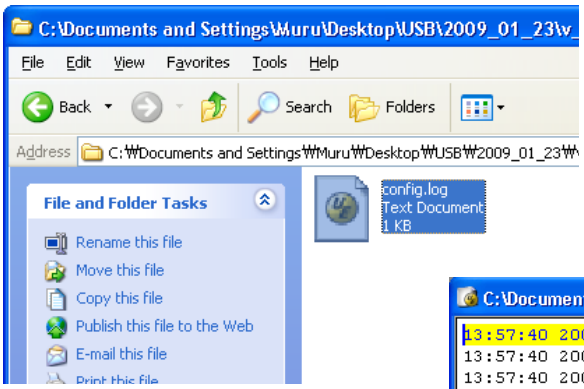
Click the button to dead sound.

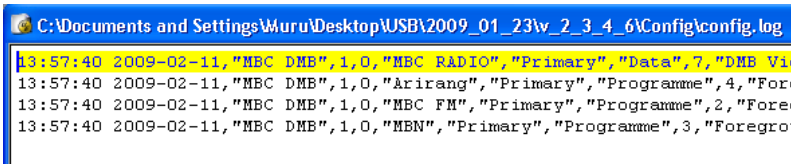
5.2.2 Multi-Player Window

(1) Activating Service Control Window

In the case of Multi-Player, will open received service details automatically from Config.log data in the Multi-Player configuration folder location.

Location reference Screenshot of Multi-player Configuration file location and reference file





* Multi-player folder has config sub-folder and saved config.log under it

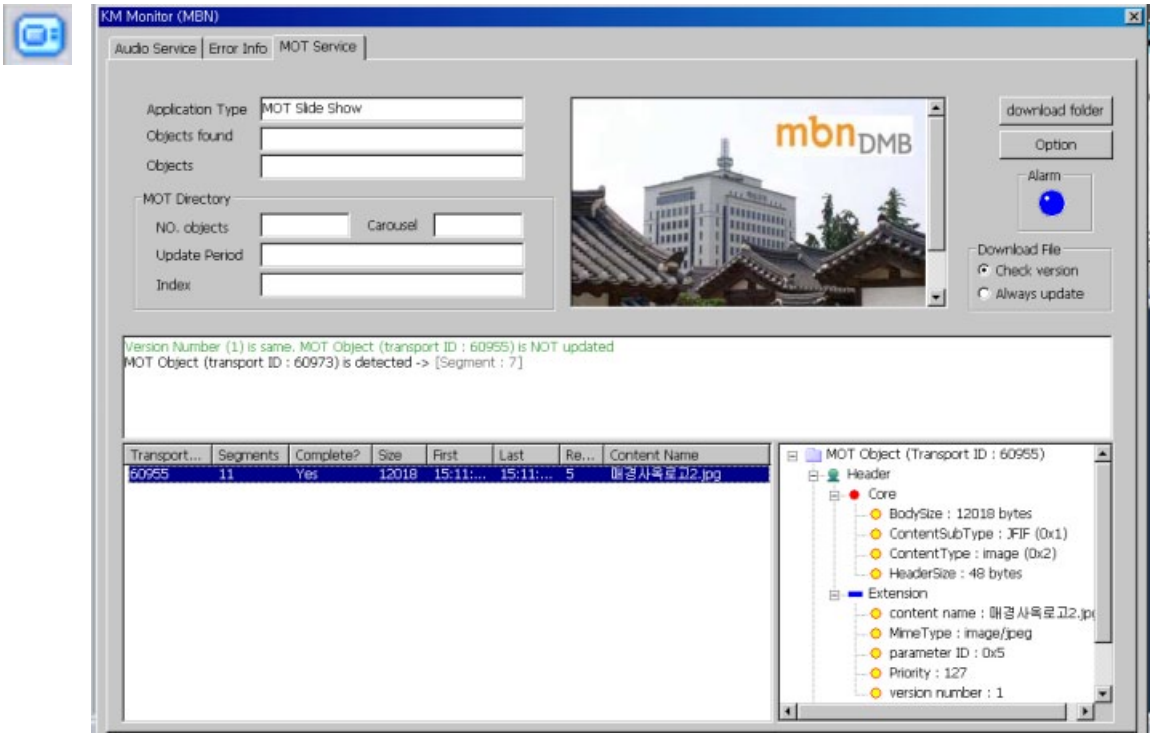
(2) Screen size control

MODE	Item	Description
\ Windows Size 	1) Windows Size	Control window size formonitor screen But each item of service must be controlled separately.

(3) Mute settings of each Service

MODE	Item	Description
\ Speaker 	1) Mute Control	Control mute

(4) Monitor (Analysis)



- Provides analysis screen of each service
(Depending option, there may be an item you are not allowed to see because of Monitoring privilege.)

- For more details, refer to '6.3 Monitoring Selection Screen'.

6. DABAIR-II Plus / SMC-DM / VM / BIFS / TPEG / DAB+(Real-time MPEG & DATA Analysis S/W)

6.1 / Outline

With SMC-S/W, you can monitor and watch T-DMB A/V and DATA broadcasting on your laptop PC or desktop PC.

6.2 / PC Requirements & Program installation

6.2.1 Operation Environment

Operation Environment of SMC-AV & DM is as below table. (Table 6-1)

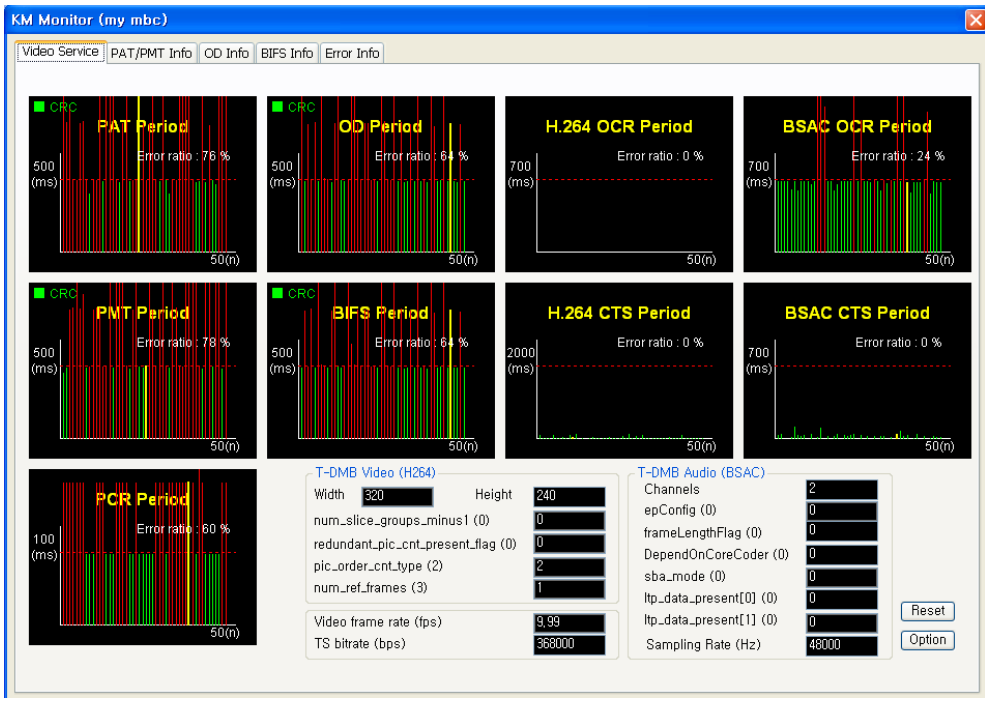
Item		Description
Platform		Laptop or Desktop PC
CPU	Minimum Specification	Over Intel Pentium 4 3.0GHz (Hyper Threading), RAM 1G
	Recommended Specification	Over Dual Core 1.83GHz, RAM 1G
OS		Windows 98, Windows 2000, Windows XP

6.2.2 Installation

Copy execution file (DxBPlayer.exe) and DLL file to temporary folder and then execute it or double click DABAir-II Plus icon.

6.3 / Monitoring Selection

(1) Video Service Monitoing [Fig. 6-2) Video Service monitoring screen]



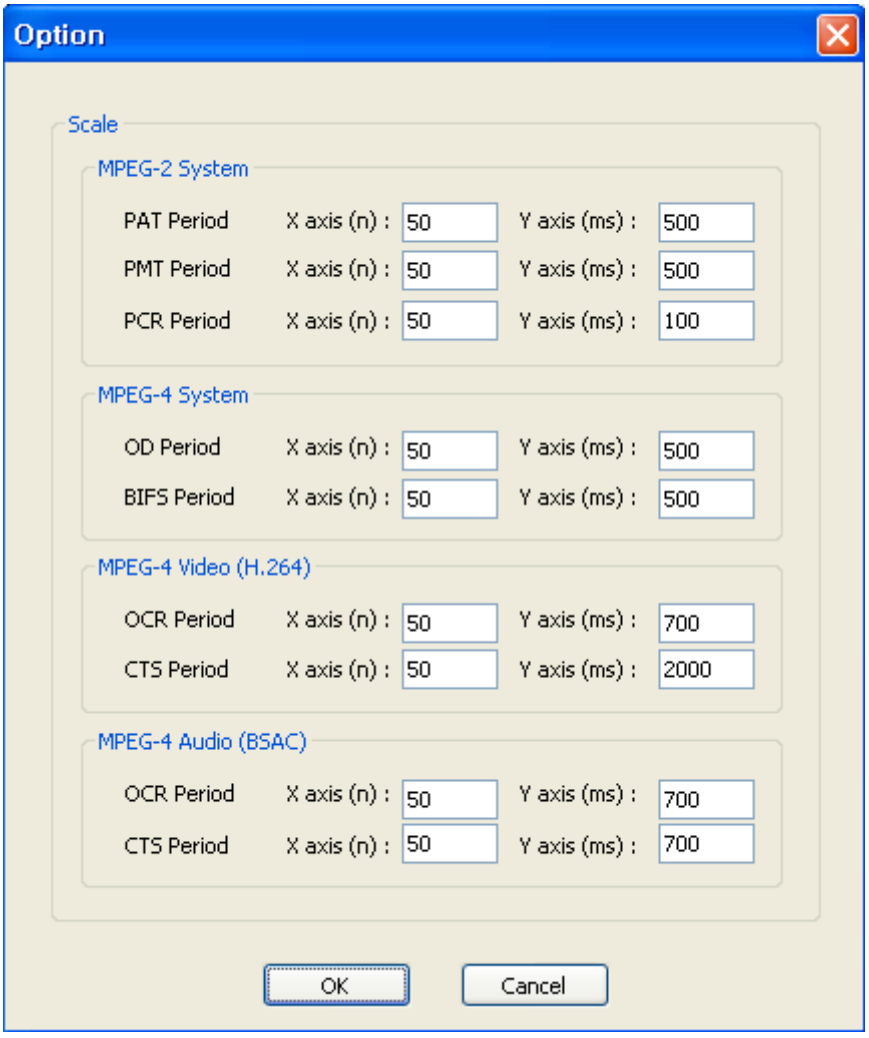
(Fig.6-2) shows 'Video Service Monitoring' screen. On 'Video Service Monitoring' screen, the below information is appeared.

Type	Parameter	Description
MPEG-2 TS System	PAT period	On the basis of current point, past periodic value is indicated up to 50 on the screen, if any exceeds 500ms, the basis value it indicates red. Current Error ratio is indicated as well.
	PMT period	On the basis of current point, past periodic value is indicated up to 50 on the screen, if any exceeds 500ms, the basis value it indicates red. Current Error ratio is indicated as well.
	PCR period	On the basis of current point, past periodic value is indicated up to 50 on the screen, if any exceeds 100ms, the basis value it indicates red. Current Error ratio is indicated as well.
MPEG4TS System	OD Period	On the basis of current point, past periodic value is indicated up to 50 on the screen, if any exceeds 500ms, the basis value it indicates red. Current Error ratio is indicated as well.
	BIFS Period	On the basis of current point, past periodic value is indicated up to 50 on the screen, if any exceeds 500ms, the basis value it indicates red. Current Error ratio is indicated as well.
H.264 Video	OCR Period	On the basis of current point, past periodic value is indicated up to 50 on the screen, if any exceeds 700ms, the basis value it indicates with red. Current Error ratio is indicated as well.
	CTS Period	On the basis of current point, past periodic value is indicated up to 50 on the screen, if any exceeds 2000ms, the basis value it indicates red. Current Error ratio is indicated as well.
	Width	Horizontal resolution is in pixels. If any exceeds the standard, it indicates red.
	Height	Vertical resolution is in pixels. If any exceeds the standard, it indicates red.
	num_slice_groups_minus1	It indicates red except normal '0'.
	redundant_pic_cnt_present flag	It indicates red except normal '0'.
	pic_order_cnt_type	It indicates red except normal '2'
	num_ref_frames	It indicates red except norm al '1 or 2 or 3'
BSAC Audio	OCR Period	On the basis of current point, past periodic value is indicated up to 50 on the screen, if any exceeds 700ms, the basis value it indicates red. Current Error ratio is indicated as well.
	CTS Period	On the basis of current point, past periodic value is indicated up to 50 on the screen, if any exceeds 700ms, the basis value it indicates red. Current Error ratio is indicated as well.
	Channels	It indicates red except normal '1 or 2'.
	epConfig	It indicates with red except normal '0'.
	frameLengthFlag	It indicates red except normal '0'
	DependOnCoreCoder	It indicates red except normal '0'
	sba_mode	It indicates red except normal '0'

	Itp_data_present[0]	It indicates red except normal '0'. When Audio channel is in stereo mode, it indicates the value of Left channel. Otherwise (in mono mode), it indicates the value of Mono channel.
	Itp_data_present[1]	It indicates red except normal '0' When Audio channel is in stereo mode; it indicates the value of Right channel. Otherwise (in mono mode), doesn't represent anything.
	Sampling Rate (Hz)	It displays Audio Sampling Rate information.

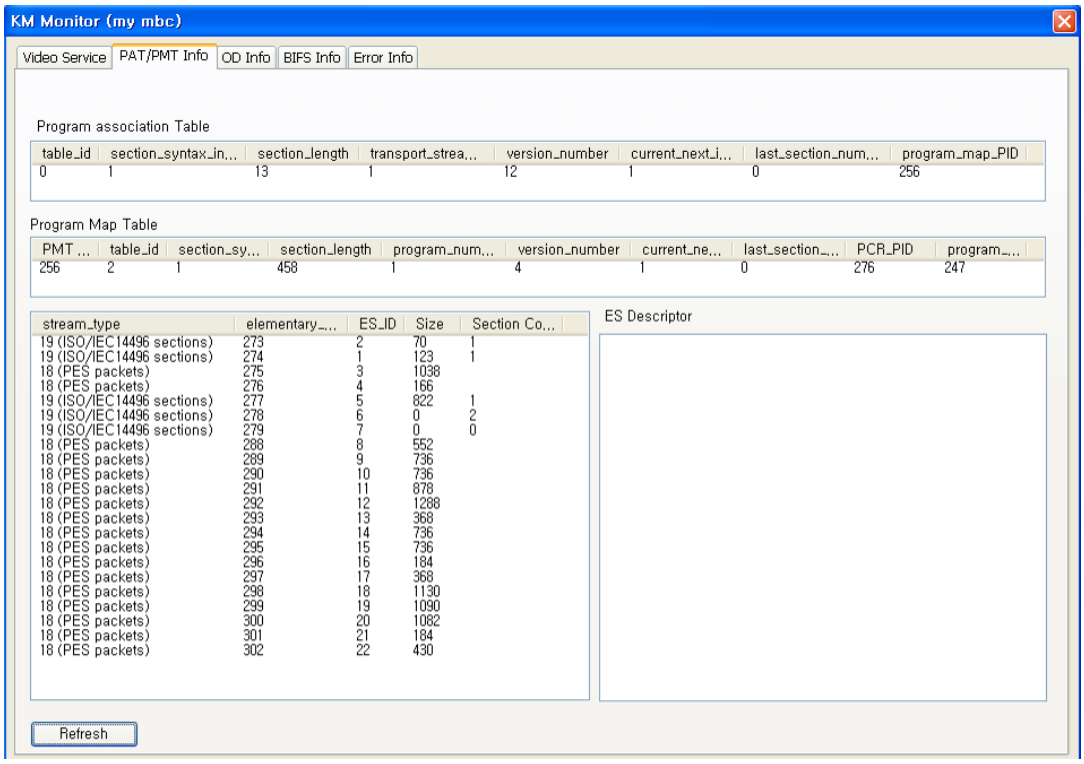
The function button on Video Service Monitoring Screen is as below table.

To	Press	Description
Changing channel	Reset	When you change the channel you are watching or monitoring, you can reset Video Service Monitoring Screen.
Modifying Graph Types	Option	You can how to modify how to indicate the graph on Video Service Monitoring screen. (Picture 6-3)



[(Fig. 6-3) Video Service monitoring screen]

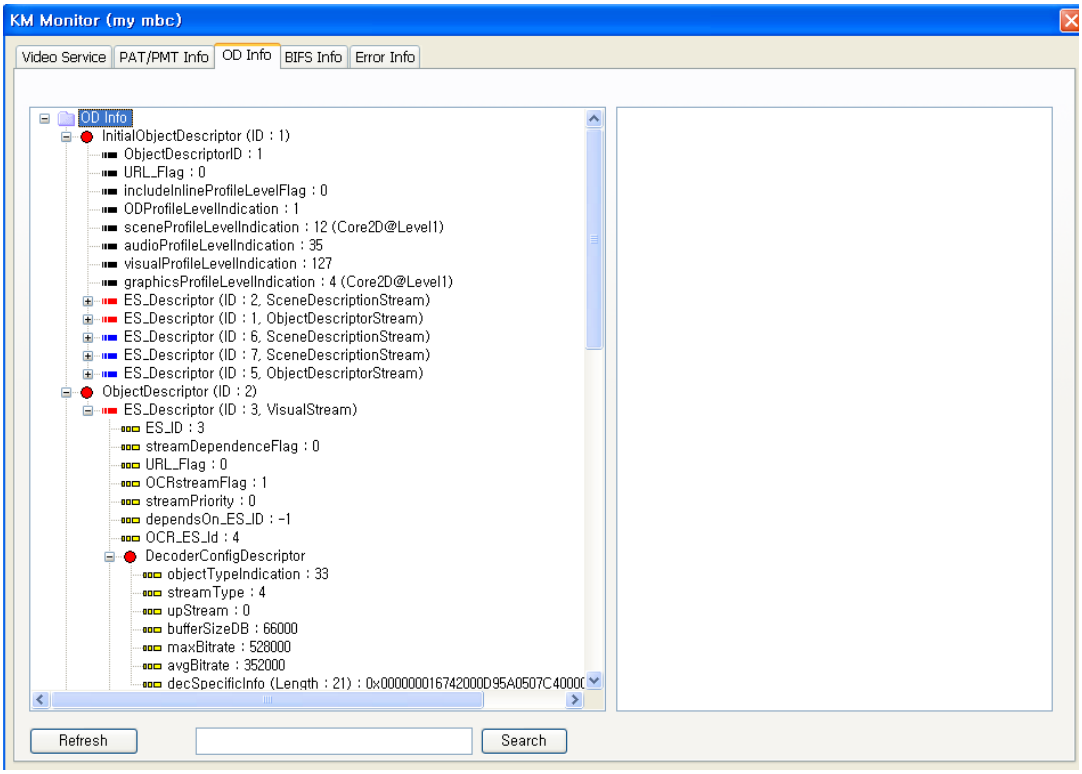
(2) PAT/PMT Info Monitoring



[(Fig. 6- 4) PAT/PMT Info monitoring screen]

Type	Parameter	Description
PA T/PMT Info	Program association Table	Shows each item of PAT
	Program MAP Table	Shows each item of PMT
	Display (In the lower left)	Shows PID of PMT and mapping table of ES_ID.
	ES Descriptor	Click each item to show the descriptor of ES.
	Refresh	Renews information.

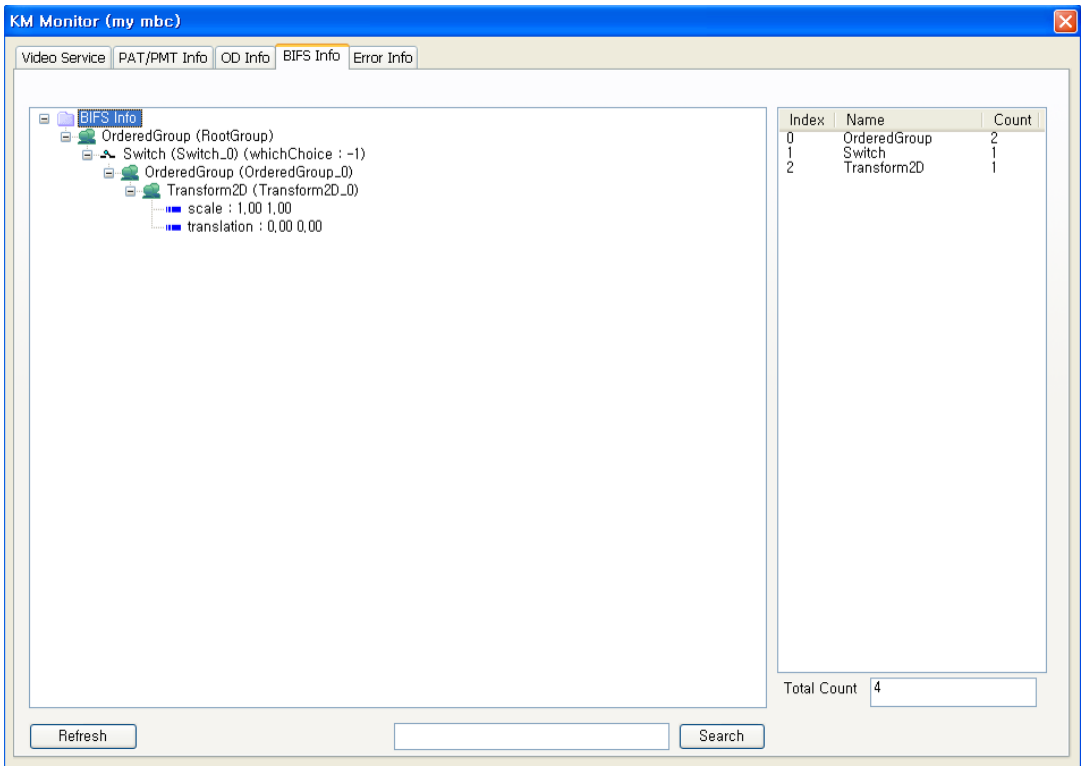
(3) OD Info Monitoring



[(Fig. 6- 5) OD Info monitoring screen]

Type	Parameter	Description
OD Info	Display (Left)	Displays all the information of IOD and OD which is found in PMT as a tree form.
	Display (Right)	Click each Descriptor to display decoder specific information. In the case of JPEG image, it displays the picture on the below.
	Refresh	Renews information.
	Search	Type in the word you want to search it.
	Refresh	Renews information.

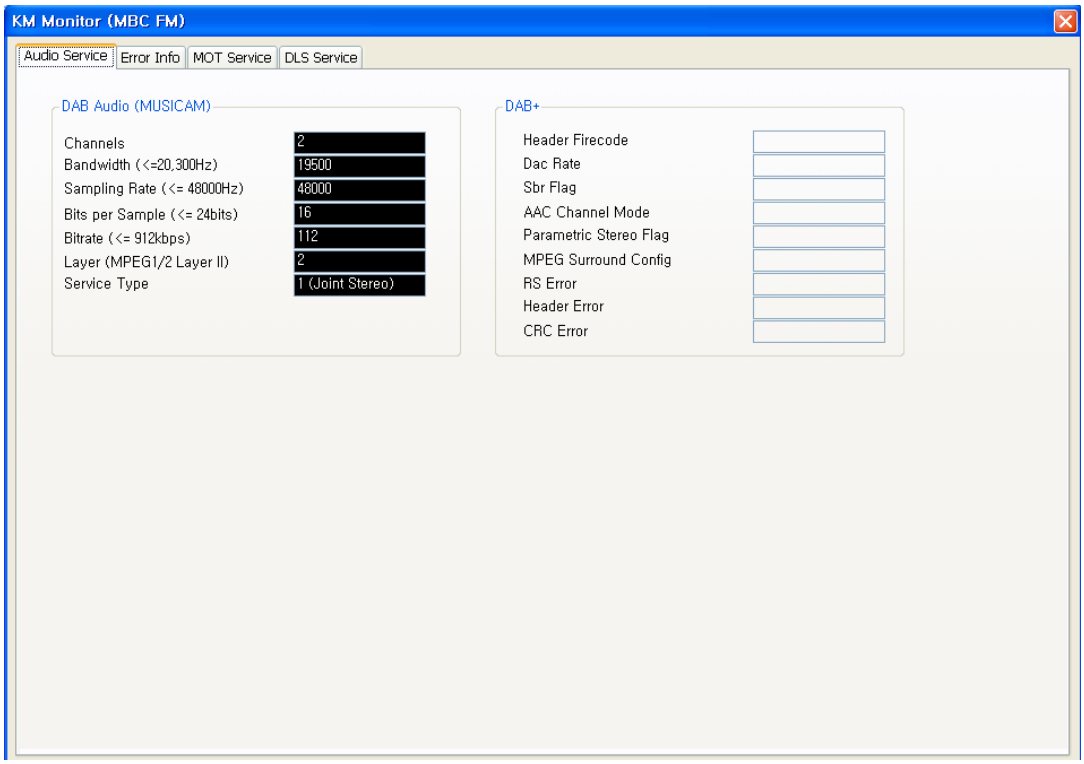
(4) BIFS Info Monitoring
: Scene graph is displayed as a tree form on the left screen.
It shows all BIFS node to make scene graph.



[(Fig. 6- 6) BIFS Info monitoring screen]

Type	Parameter	Description
BIFS Info	Display (Left)	Shows BIFS scene tree.
	Display (Right)	Shows all the number and names of BIFS node.
	Refresh	Renews information.
	Search	Searches a word.

(5) Audio Service Monitoring

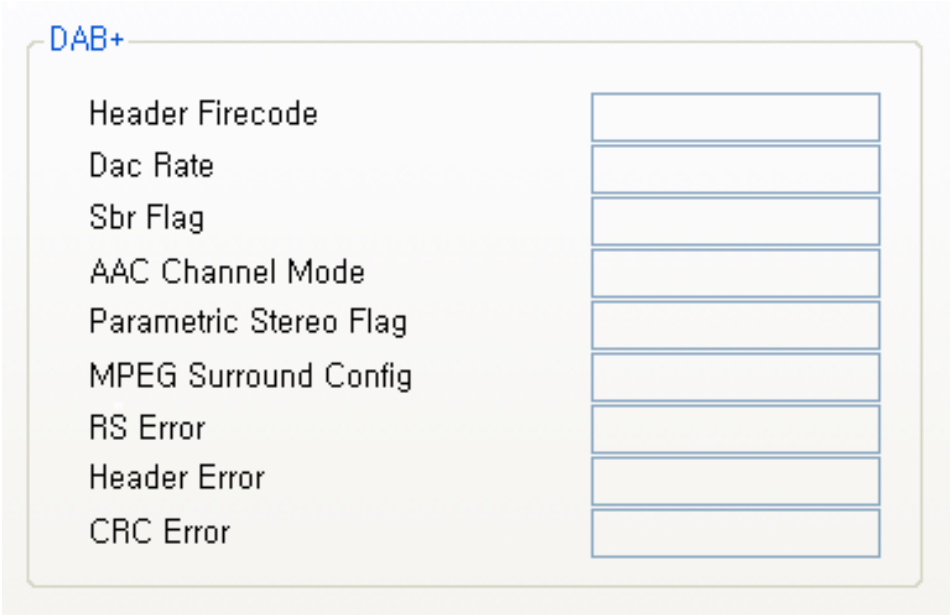


[(Fig. 6 7) Audio Service monitoring screen]

(Fig. 6-7) shows 'Audio Service monitoring' screen. 'Audio Service Monitoring' screen shows monitoring information as below.

Type	Parameter	Description
BIFS Info	Channels	Indicates red except normal '1or 2'. For your information, in the case of DAB Audio, KMM-AV/ KMM-DATA support only Mono or stereo.
	Bandwidth	Indicates red except 'the lower than 20,300Hz'.
	Sampling Rate	Indicates red except 'the lower than 48,000Hz'.
	Bits Per Sample	Indicates red except 'the lower than 24bit'.
	Bitrate	Indicates red except 'the lower than 912kbps'.
	Layer	Indicates red except 'layer II'.
	Service Type	Displays whether the service is Mono or Stereo or Joint Stereo.

(5-2) DAB+ Service Monitoring

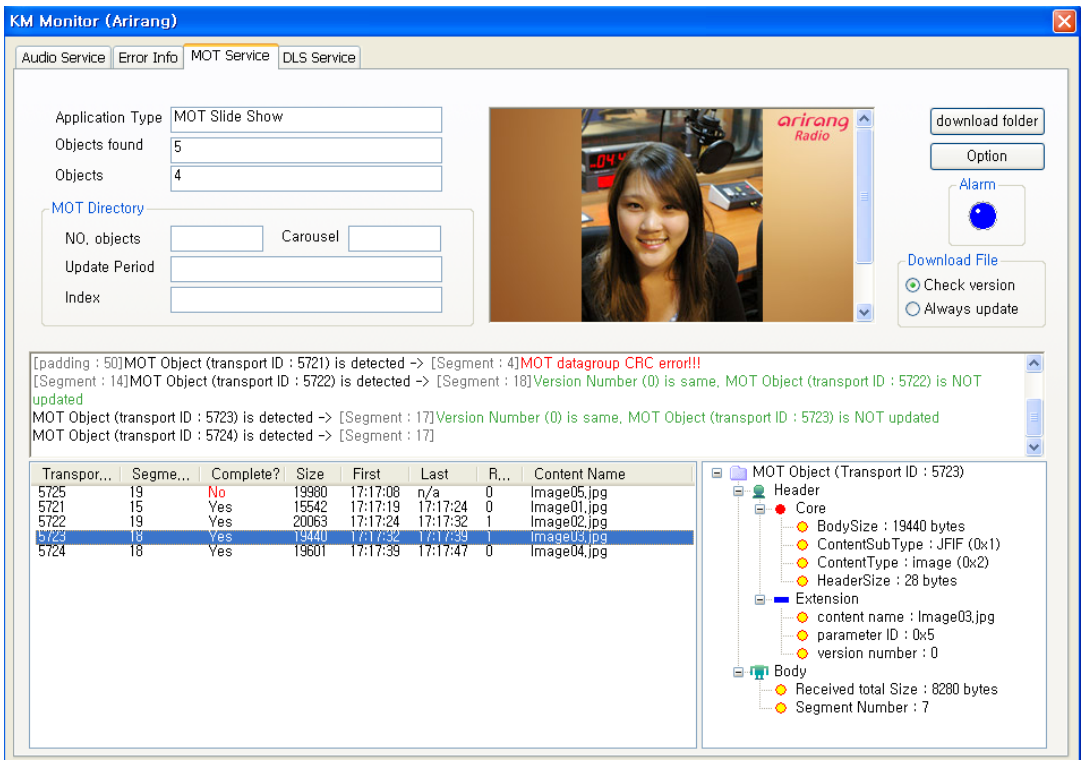


[(Fig. 6 6_1) Audio Service " DAB+" monitoring screen]

(Fig. 6-7) shows 'Audio Service monitoring' screen. 'Audio Service Monitoring' screen shows monitoring information as below.

Type	Parameter	Description
DAB+	Header Firecode	Shows header_firecode value of HE-AAC Super Frame
	Dac Rate	Shows sampling rate of DAC. 0 : 32kHz 1 : 48kHz
	Sbr Flag	Shows whether you use HE-AAC SBR or not. 0 : not used 1 : being used
	AAC Channel Mode	Shows the number of audio channels. 0 : mono 1 : stereo
	Parametric Stereo Flag	Shows whether you use HE-AAC PS or not. 0 : not used 1 : being used
	MPEG Surround Config	Shows the value of Mpeg_surround_config. 0 : not used 1 : 5.1 out put of channel 2 ~ 7 : reserved
	RS Error	Shows whether there is RS decoding error or not.
	Header Error	Shows whether HE-AAC Super Frame has CRC check error or not.
	CRC Error	Shows whether HE-AAC Frame(au) has CRC check error or not.

(6) MOT Service Monitoring



[(Fig. 6 8) MOT Service Monitoring screen]

(Fig. 6-8) shows 'MOT Service Monitoring' screen. 'MOT Service Monitoring' screen shows the below monitoring information.

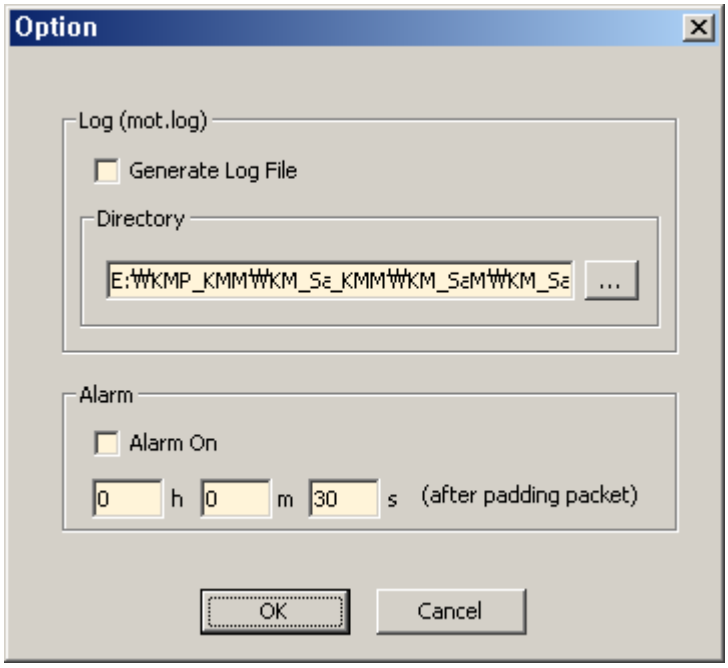
Type	Parameter		Description
DAB+	Application Type		Shows whether Application is BWS or MOT Slideshow.
	Objects found		Shows the number of MOT Object founded as far.
	Objects		Shows the number of completely received object without any error.
	MOT Directory		In the case of MOT Directory, only BWS exists. In the case of MOT Slideshow, BWS does not exist.
	Parametric Stereo Flag		In the case of MOT Slideshow, BWS does not exist.
	MOT Directory detail	No. Objects	Shows the number of object in Directory.
		Carousel	Shows the Carousel time of Directory and it can receive all objects of Directory within the time.
		Update Period	Shows the time when Directory is updated.
		Index	Directory Index. In the case of BWS, it means the first displayed page.

Type	Parameter	Description
MOT Service	Current Status Display	Shows the status of MOT Object and Directory Being received. If an error is occurred, the color of text is red and the error report is created as mot.log file when you turn on logo file creation on Option Window.
	Selected Content Preview	Shows the details of the object you selected on MOT Object List and also you can check what contents are received on Preview.
	Alarm	Blinks with Beep sound on Option window.
	Transport ID	ID which identifies each MOT Object.
	Segments	Shows the number of segment which consists of an Object.
	Complete?	Shows whether the object is received without nay error.
	Size	Shows the size of Object
	First	Shows the time when the first segment of the object is received.
	Last	Shows the time when the last segment of the object is received.
	Repeated	Shows how many times the object is received.
	Content Name	Shows the name of Object
	Header Information	The header of MOT Object consists of Core and Extension. Core has Body size, Content Sub Type, Content Type and Header Size. Extension has content name, label, Mime Type, Priority, Compression Type, Profile and various values. If you click Object on MOT Object List window, those information is displayed as a tree form on the right side. If you click Directory, All information about Directory and MOT Object and header of Directory Entry as a tree form.

function button on MOT Service Monitoring is as below.

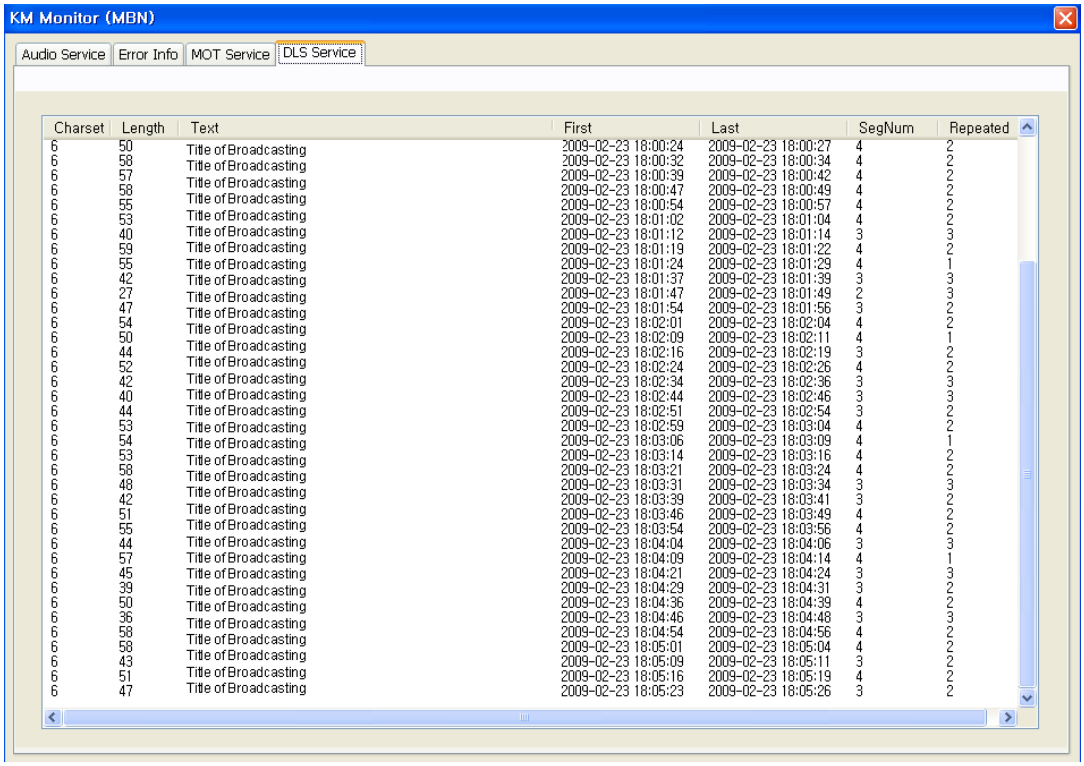
To	Press	Description
Searching File Directory	Reset	Shows the received Directory of MOT Objects.
Saving MOT Monitoring Information	Option --> Generate log File --> Directory	Provides setting alarm function when you receive Padding packet and setting save folder of MOT Service Monitoring information (Picture 6-9)
Setting Alarm	Option --> Alarm On --> h/m/s	Check a check box to tu rn on Alarm function. When you receive Live, Padding packet sometimes comes consequently. If the Padding packet remains regularly, you can set alarm. With 'Beep' sound, the blue light of the monitoring window is twinkled and let you know the status. When Padding packet remains for a while, you can set the time in Option window.

[(Fig. 6 9) Option window of MOT Service monitoring]



(7) DLS Service Monitoring

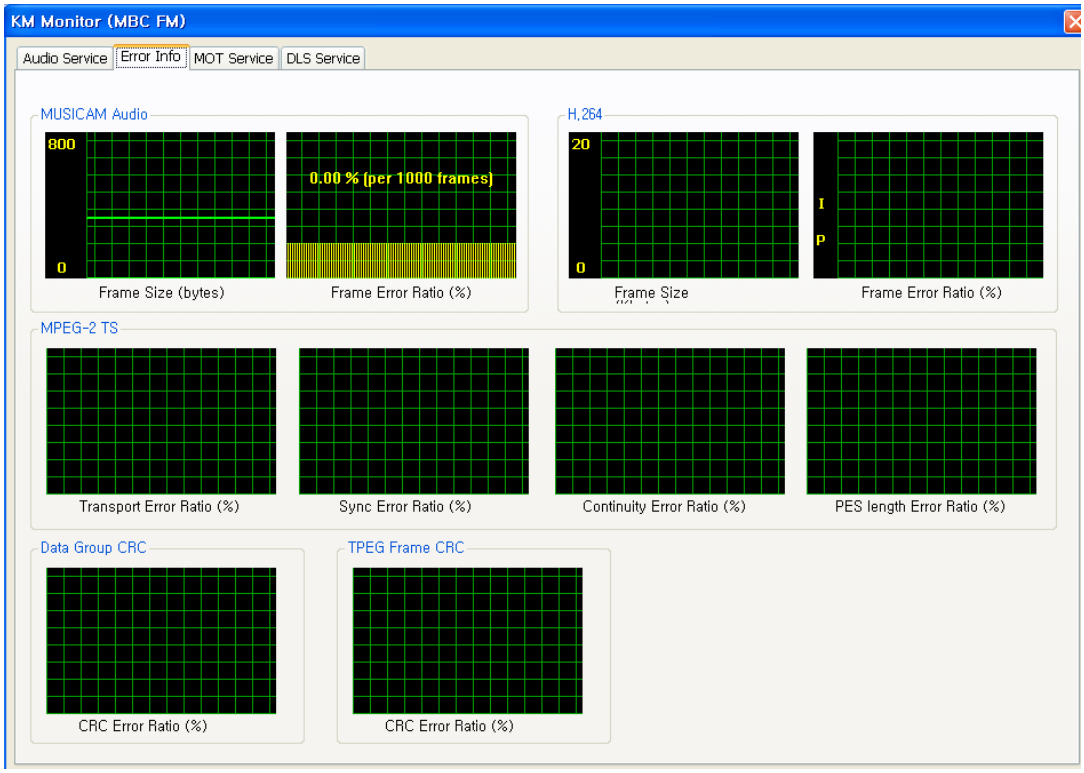
(Fig. 6-2) shows 'DLS Service Monitoring' screen. The below monitoring information is on 'DLS Service Monitoring'.



[(Fig. 6 10) DLS Service monitoring screen]

Type	Parameter	Description
DAB+	Charset	Shows Character Set
	Length	Shows the length of Text information.
	Text	Shows Text information.
	First	Shows the start time of Text information display.
	Last	Shows the end time of Text information display.
	SeqNum	Shows Sequence Number of Text information.
	Repeated	In the case of MOT Slideshow, BWS does not exist.

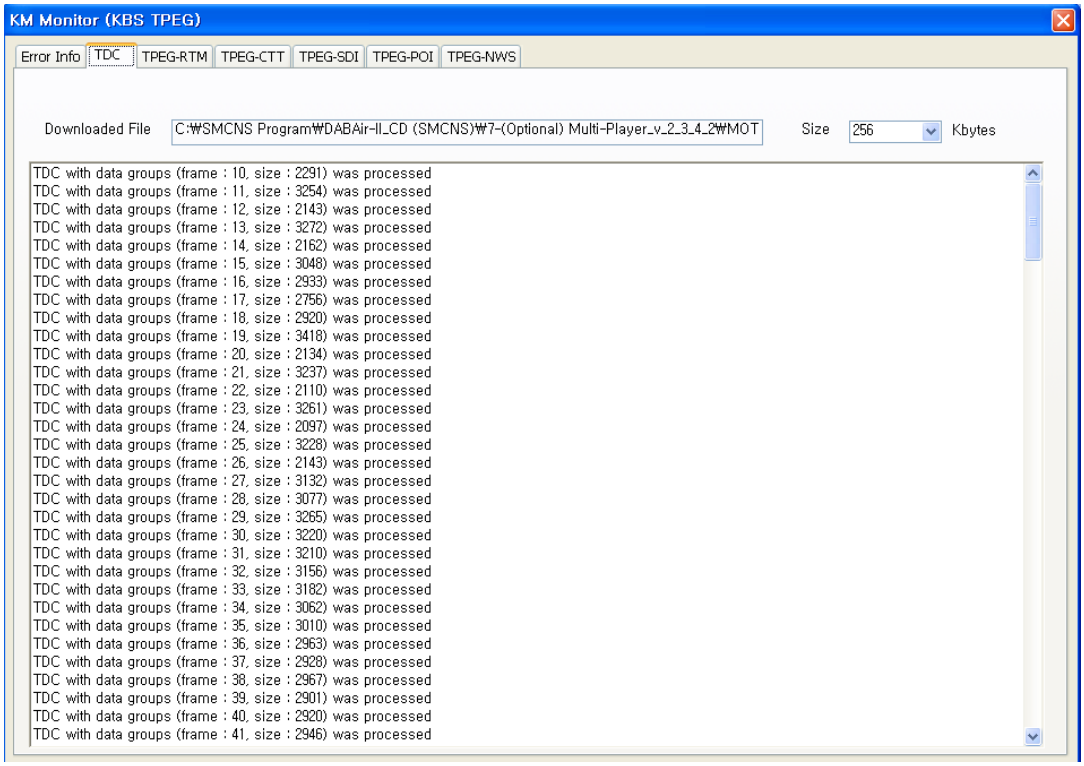
(8) Error Info Monitoring



[(Fig. 6 11) Error Info monitoring screen]

Type	Parameter	Description
BSAC Audio OR MUSICAM Audio	Frame Size (bytes)	Shows each Frame Size as a byte
	Frame Error Ratio (%)	f there is an error in Frame, it indicates red. If there is no error, it indicates yellow. Shows the ratio how much error is occurred for 1000 frame.
H.264	Frame Size (Kbytes)	Shows each Frame size as Kbyte.
	Frame Error Ratio (%)	If there is an error in Frame, it indicates red. If there is no error in Frame, it indicates yellow. If the Frame is I frame, it indicates green. Shows the ratio how much error is occurred for 1000 frame.
MPEG-2 TS	Transport Error Ratio (%)	If Transport Error is occurred in TS, it indicates red. If there is no error in TS, it indicates yellow. A vertical line means 20 ts and the error ratio occurred among the latest 20000 ts
	Sync Error Ratio (%)	Shows Sync Error occurred among TS.
	Continuity Error Ratio (%)	Shows Continuity Error occurred among TS.
	PES length Error Ratio (%)	Shows PES length Error occurred in TS
Data Group CRC	Error Ratio (%)	Shows data group CRC error in the case of PAD/NPAD service using Data Group,
TPEG Frame CRC	Error Ratio (%)	Shows CRC error of TPEG Service Frame

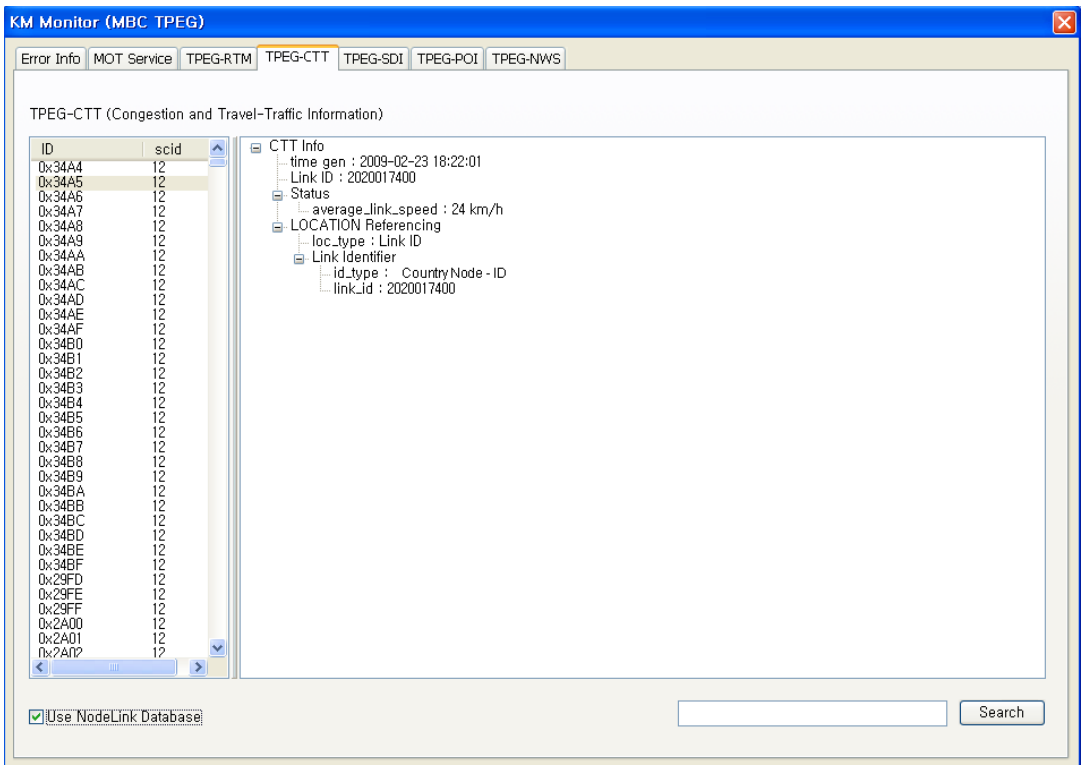
(9) TDC Monitoring



[(Fig. 6 12) TDC monitoring screen]

Type	Parameter	Description
TDC	Download File	Shows save folder and file name of TDC file.
	Display Widows	Shows size information of each data and it is used for the information whether data is coming in or not.

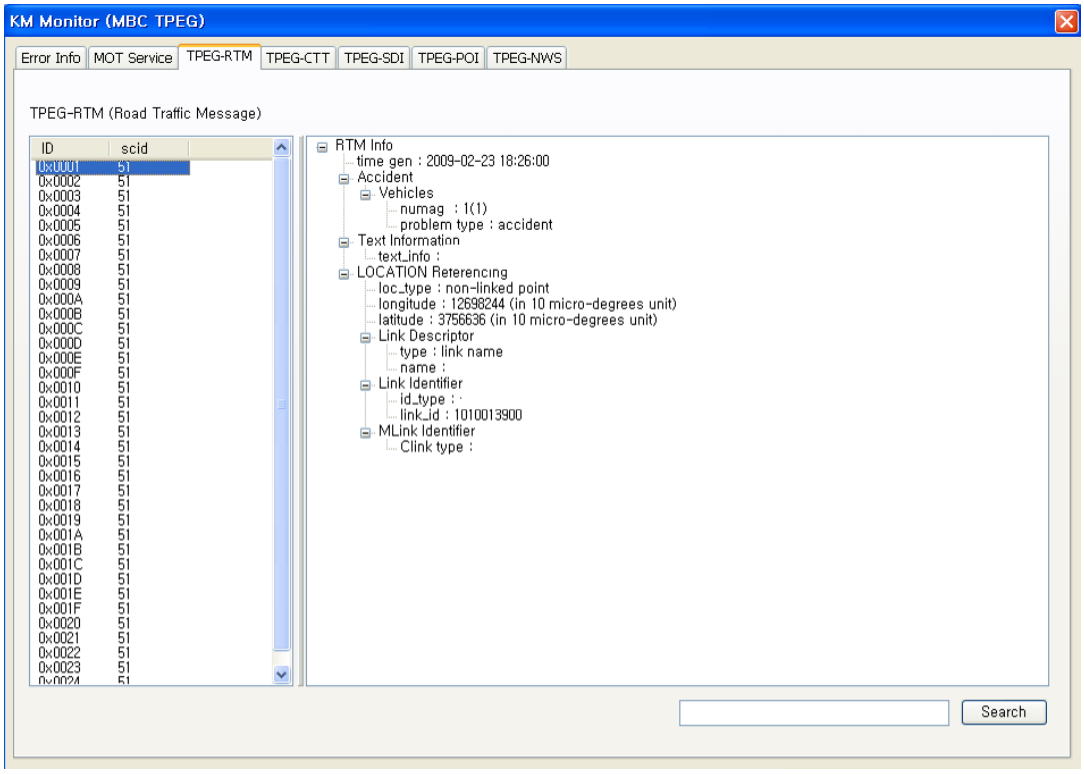
(10) TPEG-CTT Monitoring



[(Fig. 6- 13) TPEG-CTT monitoring screen]

Type	Parameter		Description
TPEG-CTT (Congestion and Travel-Traffic Information)	ID		Message ID
	scid		Service Component ID
	Use Node Link Database		If Node Link database and the related information are displayed, F_NODE and T_NODE are additionally indicated but the database MUST be installed on user's PC. It decide whether database is used or not.
	Search		Search text on the left window.
	CTT Info	Status	Shows the status information of CTT about the speed of the location, congestion and prediction
		LOCATION Referencing	Displays Location Reference of CTT
		Link Identifier	Displays Link ID.

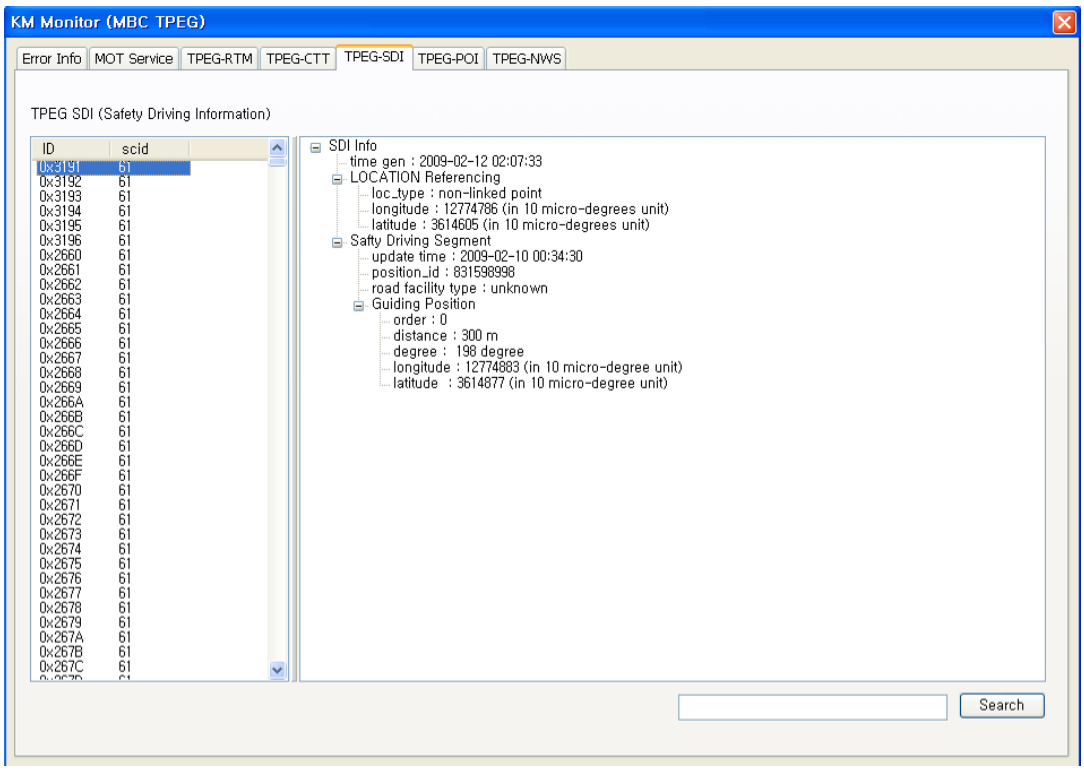
(11) TPEG-RTM Monitoring



[(Fig. 6 14) TPEG-RTM monitoring screen]

Type	Parameter		Description
TPEG-RTM (Road Traffic Message)	ID		Shows Message.
	scid		Service component ID
	RTM Info	Accident	Accident information (displays information on accident location, animal, vehicle, person and etc.,)
		LOCATION Referencing	Location Information
		Link Descriptor	Explains about link

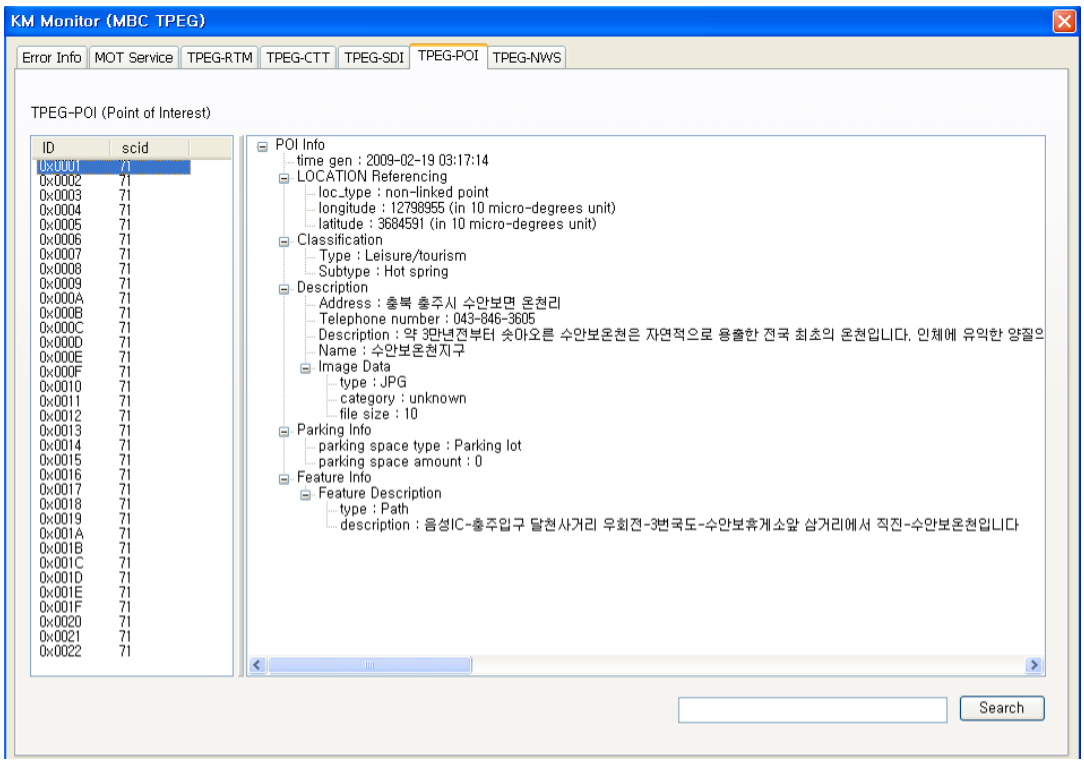
(12) TPEG-SDI Monitoring



[(Fig. 7 15) TPEG-SDI monitoring screen]

Type	Parameter		Description
TPEG-SDI (Safety Driving Information)	ID		Shows Message ID.
	Time gen		
	Search		Search text on the left window.
	SDI Info	LOCATION Referencing	Shows LOCATION Referencing
		Safety Driving Position	Shows Safe Driving Position.
		Guiding Position	Shows Guiding Position.

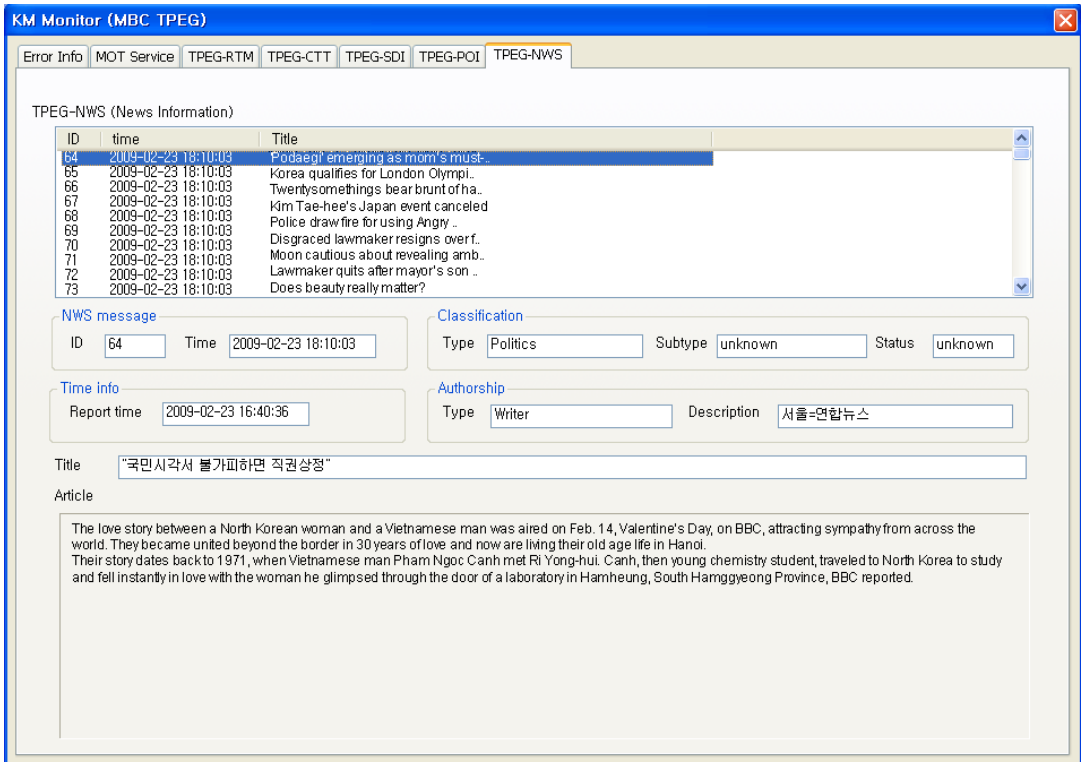
(13) TPEG-POI Monitoring



[(Fig. 6 16) TPEG-POI monitoring screen]

Type	Parameter		Description
TPEG-POI (Point of Interest)	ID		Shows Message ID.
	Time gen		
	Search		Search text on the left window.
	POI Info	LOCATION Referencing	Shows LOCATION Referencing
		Classification	Shows Classification item.
		Description	Shows Description.
		Image Data	Shows the image data
		Parking Info	Shows the parking information
		Feature Info	Shows specific information.
		Guiding Position	Shows Guiding Position.

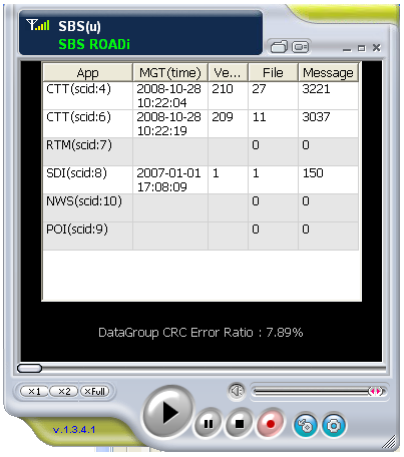
(14) TPEG-NWS Monitoring



[(Fig. 6 17) TPEG-NWS monitoring screen]

Type	Parameter		Description
TPEG-POI (NWS Information)	ID		Shows Message ID
	Time gen		Shows the creating time of Message.
	Search		Shows title.
	NWS message	ID	Shows Message ID
		Time	Shows the creating time of Message.
	Classification	Type	Shows large scale classification of information
		Subtype	Shows medium scale classification of information.
		status	Shows the status
	Time info	Report time	Shows Report time.
	Authorship	Type	Shows classification of authorized information.
		Description	Shows Description of authorized information.
	Title_2		Shows the title.
	Article		Shows article.

(15) SMC-ERR
- In case of SMC-ERR, you can check error ratio on the lower part of Display window instead of selection and check on monitoring window.

Type	screen	Type	screen
Video		Audio	
Data			

Type	Parameter	Description
SMC-ERR	TS Error Ratio(%)	Transport error ratio of received TS.
	Scf-CRC Error Ratio(%)	Scf-CRC error ratio of received audio frame.
	DataGroup Error Ratio(%)	Error ratio in case of DataGroup CRC check.

END

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