

The testing will consist of two mobile units temporarily placed in very low populated Areas of the high desert Antelope Valley approximately centered

34 50' 0" latitude, 118 12' 0" longitude (or 34.8333, 118.2000 in decimal degrees)

Have passed the minimum spacing tests: a channel or channels exist on which a LPFM station could operate in accordance with the LPFM spacing rules.

DAB data will be encoded to work on 88-110 MHz and decoded with DAC for digital radio And analog at the same time. Testing will require the movement of the transmitting equipment

To evaluate response and reliability.

Peak ERP 100 Watts on 104.7 MHz

Peak ERP 100 Watts on 87.5- 87.9 MHz

General description of equipment and location

Specification

Frequency band Band 87 - 110 MHz

- Transmission specification defined in EURECA project 147 (ver.4.1 nov.1995), according ETS 300 401 (ed.1).
- COFDM encoder plus digital modulator.
- Automatic or Manual operating mode - controlled by means microprocessor.
- Unattended operation - Fully remote controlled via parallel or serial interfaces, according to IEC 864-1 and 2 (TLC impulsive type - TLS continuous type).
- Interactive equipment control with data storage (optional).
- Modular & redundant design and very compact size
- Broad-band linear RF amplifier; RF output by paralleling several amplifier units; high isolation RF combiner.
- RF amplifier modules replacement without interrupting operation.
- RF output band-pass filter, according with the requested spectrum DAB mask.
- Operating system: single transmitter, dual driver, automatic stand-by reserve.
- Careful selection of materials with self-extinguishing characteristics.
- Easy transport, installation and maintenance.
- Low operating costs and limited spare parts required.

Mains AC power supply

- Fractional power supply, single or three phases, one or two electrical input line; $\pm 2\%$ (for highest reliability), tolerance -15% $+10\%$ optional - 50 or 60 Hz.
- Each RF amplifier module has individual power supply unit.
- The transmitter and related subsystem are protected by magneto-thermal system and realized in full compliance with the test wave 1.2/50 μ s at 6 kV peak level. Ref. ANSI C62.41.
- All parts (subsystem) are electrically powered via a toroidal transformer with the following characteristics: electric isolation between primary and secondary, electrostatic isolation referred to ground to avoid transfer of transient state from primary to secondary.

Cooling

- Air system
- Single or double cooling systems in active or automatic stand-by reserve.

Protections

- Over loads, short circuits, over heating, cooling inefficiency, high reflected power.
- Mains AC voltage out of range and phase lack, doors interlock, external interlock.
- Incorrect operation & adjustment.
- Current limiter with rapid intervention for each power transistors.
- Limiter of RF output power, in real time; in relation to increase in the VSWR or the RF input level.

DAB Audio Broadcasting - Background



New quality standards for audio

For several decades VHF FM seemed to be the only suitable method for high-quality transmission of stereo sound programs. The introduction of the digital compact disc (CD) more than ten years ago set new and considerably higher quality standards for audio transmissions. The rapid advance of digital technology also had consequences for sound broadcasting and led to the development of digital audio broadcasting systems.



Mobile reception in CD quality

With the new coding and modulation techniques of DAB, interfering signals are effectively suppressed so that undisturbed (mobile) reception in CD quality is obtained.



MUSICAM coding method

DAB uses the bit-rate-reducing MUSICAM coding method (masking pattern adapted universal sub band integrated coding and multiplexing, for coding program signals (e.g. music from CD players).

This method also allows for the psychoacoustic response of the human ear. The DAB Source Encoder DMU uses irrelevance and redundancy reduction so that a multiplex signal consisting of several coded audio signals can be sent in a limited bandwidth via a terrestrial transmission channel.



Digital modulation method COFDM

Undisturbed mobile reception is ensured by the digital modulation method COFDM (coded orthogonal frequency-division multiplex). The multiplex data stream is spread over about 1500 QPSK-modulated carriers (mode I) so that, in spite of interference and drops in field strength, the COFDM demodulator in the receiver picks up an adequate number of signal components for evaluation. With the aid of error-correction methods and concealment strategies, the receiver eliminates all the remaining disturbances or reduces them below the audible threshold. With this modulation method even the delayed signal components of multipath reception (reflections), which are particularly disturbing in VHF FM transmissions, can be utilized for the directly received signal.



Block diagram of DAB single-frequency network



