

FCC ID: E9MHT4000



EMISSION -- TESTREPORT

Testreport file no. : T22891-00-05KJ Date : March 20, 2003
of issue

Model : Wireless Microphone / Handheld Transmitter

Type : HT4000

Applicant : AKG Acoustics, U.S.

Manufacturer : AKG Acoustics GmbH, Austria

Licence holder : AKG Acoustics, U.S.

Address : 914 Airpark Center Dr.
Nashville, TN 37217, U.S.A.

Test result accrdg.
to the regulation(s)
at page 3

:

POSITIVE

This testreport with appendix consists of **226** pages.
The testresult only responds to the tested sample. It is not allowed to copy
this report even partly without the allowance of the testlaboratory.

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TEST REGULATIONS

The tests were performed according to following regulations :

- o - EN 50081-1 / 2.1991
- o - EN 50081-2 / 7.1993

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- | | | |
|---------------------------------------|--------------------------------------|-------------|
| o - EN 55011 / 3.1991 | o - Group 1 | o - Group 2 |
| | o - class A | o - class B |
| o - EN 55014 / 4.1993 | o - Household appliances and similar | |
| | o - tools | |
| | o - Semiconductor devices | |
| o - EN 55014 / A2:1990 | | |
| o - EN 55104 / 5.1995 | Category: | |
| o - EN 55015 / A1:1990 | | |
| o - EN 55015 / 12.1993 | | |
| o - EN 55022 / 5.1995 | o - class A | o - class B |
| o - prEN 55103-1/ 3.1995 | | |
| o - prEN 50121-3-2 / 3.1995 | | |
| o - EN 60601-1-2 / 4.1994 | | |
| o - VCCI | o - class 1 | o - class 2 |
| ■ - 47 CFR Part 74 Subpart H (74.861) | | |

ADDRESS OF THE TEST LABORATORY

- - MIKES BABT PRODUCT SERVICE GmbH
Ohmstrasse 2-4
D - 94342 Strasskirchen

o - _____

ENVIRONMENTAL CONDITIONS

Temperature: 15-35 ° C

Humidity 45-60 %

Atmospheric pressure 860-1060 mbar

POWER SUPPLY SYSTEM UTILIZED

Power supply system : Internal batteries DC 2.45 V

STATEMENT OF MEASUREMENT UNCERTAINTY

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error of ± 4 dB. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

SHORT DESCRIPTION OF THE EQUIPMENT UNDER TEST (EUT)

The HT4000 is a handheld wireless transmitter in the UHF band (650MHz to 865MHz in 6 frequency-bands with 30MHz switching range of each). Transmit-frequencies are generated by a PLL synthesized programmable system using a 16MHz crystal as a reference. The VCO is an stipline-type modulated by means of a varactor-diode. The audio signal is fed through preemphasis and compressor stages before it gets to the modulator.

The generated RF signal is amplified by 3 stages and filtered before it is coupled to the antenna.

The HT4000 can be used for vocal use.

Number of received/tested samples: 6 / 6

DEFINITIONS FOR SYMBOLS USED IN THIS TEST REPORT

- - Black box indicates that the listed condition, standard or equipment is applicable for this Report.
- o - Blank box indicates that the listed condition, standard or equipment was not applicable for this Report.

M E A S U R E M E N T P R O T O C O L F O R F C C , V C C I A N D A U S T E L

Test Methodology

Conducted and radiated emission testing is performed according to the procedures in International Special Committee on Radio Interference (CISPR) Publication 22 (1993), European Standard EN 55022 and Australian Standard AS 3548 (which are based on CISPR 22).

The Japanese standard, "Voluntary Control Council for Interference (VCCI) by Data Processing Equipment and Electronic Office Machines, Technical Requirements" is technically equivalent to CISPR 22 (1993). For official compliance, a conformance report must be sent to and accepted by the VCCI.

In compliance with FCC Docket 92-152, "Harmonization of Rules for Digital Devices Incorporate International Standards", testing for FCC compliance may be done following the ANSI C63.4-1992 procedures and using the FCC limits or the CISPR 22 Limits.

Measurement Error

The test system for conducted emissions is defined as the LISN, tuned receiver and coaxial cable. The test system for spurious emissions is defined as the antenna, the pre-amplifier, the tuned receiver and the coaxial cable. These test systems have an expected error of ± 3 dB. The equipment comprising the test systems are calibrated on an annual basis.

Justification

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

General Standard Information

The test methods used comply with CISPR Publication 22 (1993), EN 55022 (1987) and AS 3548 (1992) - "Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment" and with ANSI C63.4-1992 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz."

For detailed description of each measurement please refer to section testresults.

DISCOVERY OF WORST CASE MEASUREMENT CONDITION:

The model HT4000 consists of 6 different versions

- Band I: 650MHz - 680MHz
- Band II: 680MHz - 710MHz
- Band III: 720MHz - 750MHz
- Band IV: 760MHz - 790MHz
- Band V: 790MHz - 820MHz
- Band VI: 854.1MHz - 865MHz

All the 6 versions are technically identical except the following items:

- 6 different programmed frequency ranges
- PCB. The boards are similar with differences only in the output filter. On the PCB, the values of some resistors, coils and capacitors are different. For more detailed information, please see technical documentation set

To find out the worst case channel for each band, the radiated field strength and the spurious emissions have been tested on the lowest, middle and highest channel. The worst case channel was recorded. All other remaining tests have been performed on the worst case channel. The reason for this was, that there was no influence recognisable measurement of frequency error and channel bandwidth over each band.

SUMMARIZING:

The complete measurement have been performed on the following 6 versions:

- Band I: working on 650.1MHz
- Band II: working on 680MHz
- Band III: working on 750MHz
- Band IV: working on 760MHz
- Band V: working on 805MHz
- Band VI: working on 865MHz

Note: According to manufacturers declaration the use in the band 824MHz to 851MHz will be prohibited for the US market (see declaration technical construction file).

TEST RESULT**CONDUCTED EMISSIONS - 10/150 kHz - 30 MHz**

■ - Test not applicable

Test location :

- o - Shielded room no. 1
- o - Shielded room no. 2
- o - Shielded room no. 3
- o - Shielded room no. 4
- o - Shielded room no. 5
- o - Shielded room no. 6
- o - Shielded room no. 7
- o - Anechoic chamber

For TEST EQUIPMENT USED please refer to ATTACHMENT D: _____

Description of Measurement

The final level, expressed in dB μ V, is arrived at by taking the reading directly from the EMI receiver. This level is compared directly to the FCC Limit or to the CISPR limit, which is equivalent to the Australian AS 3548 limit.

To convert between dB μ V and μ V, the following conversions apply:

$$\text{dB}\mu\text{V} = 20(\log \mu\text{V})$$

$$\mu\text{V} = \text{Inverse log}(\text{dB}\mu\text{V}/20)$$

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasipeak detection, and a Line Impedance Stabilization Network (LISN), with 50 Ω /50 μ H (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters from the vertical ground plane (wall) of the screen room. If the minimum passing margin appears to be less than 20 dB with a peak mode measurement, the emissions are remeasured using a tuned receiver with quasipeak and average detection and recorded on the data sheets.

Testresult

The requirements are

0 - MET

0 - NOT MET

Min. limit margin

_____ dB at _____ MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks: EUT is not having a mains connection. Operated by a internal
battery.

SPURIOUS EMISSION

Spurious emissions from the EUT are measured in the frequency range of 30 to 10 times the highest used frequency using a tuned receiver and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasipeak detection and measurements above 1000 MHz are made with a 1 MHz/6 dB bandwidth and peak detection, remeasurement of results which may be critical will be repeated in average mode. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna was positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT are rotated 360 degrees.

SPURIOUS EMISSION (MAGNETIC FIELD) 10 kHz - 30 MHz**■ - Test not applicable**

- o - in a shielded room
- o - at a non - reflecting open-site
- and
- o - in a testdistance of 3 meters.
- o - in a testdistance of 30 meters.

For TEST EQUIPMENT USED please refer to ATTACHMENT D: _____

Description of Measurement

The final level, expressed in dBµV/m, is arrived at by taking the reading from the EMI receiver (Level dBµV) and adding the antenna correction factor and cable loss factor (Factor dB) to it. This result then has to be compared with the relevant FCC limit.

Example:

Frequency (MHz)	Level (dBµV)	+	Factor (dB)	=	Level (dBµV/m)	Limit (dBµV/m)	=	Delta (dB)
1.705	5	+	20	=	25	30	=	5

Testresult

The requirements are

0 - MET

0 - NOT MET

Min. limit margin

dB

at _____ MHz

Max. limit exceeding

dB

at _____ MHz

Remarks: Not applicable.

SPURIOUS EMISSIONS (electric field) 30 MHz - 1000 MHz

0 - Test not applicable

- - Open-site 1
- o - Open-site 2
- - 3 meters
- o - 10 meters
- o - 30 meters

For TEST EQUIPMENT USED please refer to ATTACHMENT D: SER2**Description of Measurement**

The final level, expressed in dB μ V/m, is arrived by taking the reading from the EMI receiver (Level dB μ V) and adding the correction factors and cable loss factor (Factor dB) to it. This is done automatically in the EMI receiver, where the correction factors are stored. This result then has the FCC or CISPR limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets at page 24 - 25. The CISPR 22 limit is equivalent to the Australian AS 3548 limit.

Example:

Frequency (MHz)	Level (dB μ V)	+	Factor (dB)	=	Level (dB μ V/m)	Limit (dB μ V/m)	=	Delta (dB)
719	75	+	32.6	=	107.6	110	=	-2.4

Testresult

EuT: HT4000 Band I working on 760.1 MHz:

Frequency [MHz]	Reading Vert. [dB μ V]	Reading Hor. [dB μ V]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dB μ V/m]	Level Hor. [dB μ V/m]	Limit [dB μ V/m]	Dlimit [dB]
30 - 1000	-	-	-	-	<35	<35	84.4	49.4

The requirements are

■ - MET

o - NOT MET

Min. limit margin

> 49.4 dB at 30-1000 MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks: The emissions have to be att. 43+10log(P in W) below the
carrier. $P_{max, CH F} = 16.6$ mW --> 25.2 dB att. Max. field strength
in OATS: 84.4 dB μ V/m.

EuT: HT4000 Band II working on 680 MHz:

Frequency [MHz]	Reading Vert. [dBμV]	Reading Hor. [dBμV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBμV/m]	Level Hor. [dBμV/m]	Limit [dBμV/m]	Dlimit [dB]
30 - 1000	-	-	-	-	<35	<35	84.4	49.4

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

> 49.4 dB at 30-1000 MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks: The emissions have to be att. $43+10\log(P \text{ in W})$ below the carrier. $P_{\text{max, CH F}} = 13.8 \text{ mW} \rightarrow 24.4 \text{ dB att. Max. field strength in OATS: } 84.4 \text{ dBμV/m.}$

EuT: HT4000 Band III working on 750 MHz:

Frequency [MHz]	Reading Vert. [dBμV]	Reading Hor. [dBμV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBμV/m]	Level Hor. [dBμV/m]	Limit [dBμV/m]	Dlimit [dB]
30 - 1000	-	-	-	-	<35	<35	84.4	49.4

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

> 49.4 dB at 30-1000 MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks: The emissions have to be att. $43+10\log(P \text{ in W})$ below the carrier. $P_{\text{max, CH F}} = 17.4 \text{ mW} \rightarrow 25.4 \text{ dB att. Max. field strength in OATS: } 84.4 \text{ dBμV/m.}$

EuT: HT4000 Band IV working on 760 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
30 - 1000	-	-	-	-	<35	<35	84.4	49.4

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

> 49.4 dB at 30-1000 MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks: The emissions have to be att. $43+10\log(P \text{ in W})$ below the carrier. $P_{\text{max, CH F}} = 17.0 \text{ mW} \rightarrow 25.3 \text{ dB att.}$ Max. field strength in OATS: 84.4 dBµV/m.

EuT: HT4000 Band V working on 805 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
30 - 1000	-	-	-	-	<35	<35	84.4	49.4

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

> 49.4 dB at 30-1000 MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks: The emissions have to be att. $43+10\log(P \text{ in W})$ below the carrier. $P_{\text{max, CH F}} = 8.5 \text{ mW} \rightarrow 22.3 \text{ dB att.}$ Max. field strength in OATS: 84.4 dBµV/m.

EuT: HT4000 Band VI working on 865 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
30 - 1000	-	-	-	-	<35	<35	84.4	49.4

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

> 49.4 dB

at 30-1000 MHz

Max. limit exceeding

_____ dB

at _____ MHz

Remarks: The emissions have to be att. $43+10\log(P \text{ in W})$ below the
 carrier. $P_{\text{max, CH F}} = 12.0 \text{ mW} \rightarrow 23.8 \text{ dB att. Max. field strength}$
 in OATS: 84.4 dBµV/m.

SPURIOUS EMISSION 1 GHz - 18 GHz

o - Test not applicable

Test location :

- o - Open-site 1
- o - Open-site 2
- - Anechoic chamber
- o - Full compact chamber

- o - 1 meters
- - 3 meters
- o - 10 meters

For TEST EQUIPMENT USED please refer to ATTACHMENT D: SER3

Description of Measurement

The final level, expressed in dBµV/m, is arrived by taking the reading from the Spectrum analyzer in dBµV and adding the correction factors of the test setup incl. cables.

Example of the correction value at 1.5 GHz

Level reading at 1.5 GHz	correction EMC0 3115	correction Amplifier AWT 8035 + cable	correction factor (summarized)	corrected level
56 dBµV	+25.7	-41.7	-16	40 dBµV

Testresult

EuT: HT4000 Band I working on 650.1 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
2599,10	53,4	59,1	-10,3	-10,3	43,1	48,8	84,4	-35,6
3254,50	49,5	50,7	-9,1	-9,1	40,4	41,6	84,4	-42,8
3903,80	48,7	56,1	-6,2	-6,2	42,5	49,9	84,4	-34,5
5441,00	45,2	53,3	1,8	1,8	47,0	55,1	84,4	-29,3

The requirements are

■ - MET

o - NOT MET

Min. limit margin

29.3 dB at 5.4 GHz

Max. limit exceeding

dB at GHz

EuT: HT4000 Band II working on 680 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
1360,70	46,6	48,6	-15,1	-15,1	31,5	33,5	84,4	-50,9
2040,00	48,2	52,6	-11,6	-11,6	36,6	41,0	84,4	-43,4
2719,40	53,7	59,7	-10,0	-10,0	43,7	49,7	84,4	-34,7
3404,80	51,3	50,2	-8,5	-8,5	42,8	41,7	84,4	-41,6
4150,00	40,9	47,2	1,6	1,6	42,5	48,8	84,4	-35,6
4720,00	50,6	47,0	-0,3	-0,3	50,3	46,7	84,4	-34,1

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

_____ 34.1 dB at _____ 4.7 GHz

Max. limit exceeding

_____ dB at _____ GHz

EuT: HT4000 Band III working on 750 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
1498,90	61,4	61,2	-14,9	-15,0	46,5	46,3	84,4	-37,9
2250,50	63,9	63,7	-11,0	-11,0	52,9	52,7	84,4	-31,5
3002,00	51,9	58,7	-9,5	-9,5	42,4	49,2	84,4	-35,2
3753,50	51,2	51,4	-6,8	-6,8	44,4	44,6	84,4	-39,8

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

_____ 31.5 dB at _____ 2.2 GHz

Max. limit exceeding

_____ dB at _____ GHz

EuT: HT4000 Band IV working on 760 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
1517,00	48,2	58,4	-14,9	-14,9	33,3	43,5	84,4	-40,9
2280,50	55,7	60,9	-10,9	-10,9	44,8	50,0	84,4	-34,4
3044,00	49,6	60,1	-9,5	-9,5	40,1	50,6	84,4	-33,8
3801,60	47,4	48,5	-6,5	-6,5	40,9	42,0	84,4	-42,4
4553,10	-	44,7	-	0,1	-	44,8	84,4	-39,6
5322,60	-	49,0	-	0,6	-	49,6	84,4	-34,8
6080,10	-	45,6	-	4,6	-	50,2	84,4	-34,2

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

_____ 33.8 dB at _____ 3.0 GHz

Max. limit exceeding

_____ dB at _____ GHz

EuT: HT4000 Band V working on 805 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
1607,20	49,6	52,4	-14,5	-14,5	35,1	37,9	84,4	-46,5
2418,80	57,5	67,1	-10,6	-10,6	46,9	56,5	84,4	-27,9
3224,40	52,3	52,5	-9,1	-9,1	43,2	43,3	84,4	-41,1

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

_____ 27.9 dB at _____ 2.4 GHz

Max. limit exceeding

_____ dB at _____ GHz

EuT: HT4000 Band VI working on 865 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
1727,40	47,9	55,0	-13,8	-13,8	34,1	41,2	84,4	-43,2
2593,10	51,6	57,8	-10,3	-10,3	41,3	47,5	84,4	-36,9
3464,90	54,5	53,1	-8,3	-8,3	46,2	44,8	84,4	-38,2
4324,60	-	43,3	-	1,1	-	44,5	84,4	-39,9
5190,30	-	42,5	-	-0,4	-	42,1	84,4	-42,3

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

_____ 36.9 dB at _____ 2.6 GHz

Max. limit exceeding

_____ dB at _____ GHz

Remarks: _____ The limits are met. The measurement has been performed in Peak-
 _____ mode. For critical results, the measurement would be repeated
 _____ in average mode.

_____ Measurement has been performed up to the 10th harmonic.

FIELD STRENGTH OF THE FUNDAMENTAL WAVE**0 - Test not applicable****Test location :**

- - Open-site 1
- o - Open-site 2
- o - Anechoic chamber
- o - Full compact chamber

- o - 1 meters
- - 3 meters
- o - 10 meters

For TEST EQUIPMENT USED please refer to ATTACHMENT D: CPR2

Description of Measurement

The final level, expressed in dBµV/m, is arrived by taking the reading from the EMI receiver (Level dBµV) and adding the correction factors and cable loss factor (Factor dB) to it. This is done automatically in the EMI receiver, where the correction factors are stored. This result then has the FCC or CISPR limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets at page 24 - 25. The CISPR 22 limit is equivalent to the Australian AS 3548 limit.

Example:

Frequency (MHz)	Level (dBµV)	+	Factor (dB)	=	Level (dBµV/m)	Limit (dBµV/m)	=	Delta (dB)
719	75	+	32.6	=	107.6	110	=	-2.4

Example of calculation of the max. power based on the fieldstrength measured in a distance of 3 m:

Fieldstrength E (LOG) = 109.6 dBµV/m
 Fieldstrength E (LIN) = 0.302 V/m

$$P = (E \times D)^2 / 49.5$$

$$P = (0.302 \text{ V/m} \times 3 \text{ m})^2 / 49.5 = 0.0169 \text{ W} = \underline{\underline{16.6 \text{ mW}}}$$

Testresult

EuT: HT4000 Band I working on 650.1 MHz:

Frequency [MHz]	Reading Vert. [dBμV]	Reading Hor. [dBμV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBμV/m]	Level Hor. [dBμV/m]	Limit [dBμV/m]	Dlimit [dB]
650,07	80,3	72,7	29,3	29,3	109,6	102,0	121,4	-11,8

P = 16.6 mW

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

11.8 dBat 650.1 MHz

Max. limit exceeding

_____ dB

at _____ MHz

EuT: HT4000 Band II working on 680 MHz:

Frequency [MHz]	Reading Vert. [dBμV]	Reading Hor. [dBμV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBμV/m]	Level Hor. [dBμV/m]	Limit [dBμV/m]	Dlimit [dB]
680,00	79,0	69,6	29,8	29,8	108,8	99,4	121,4	-12,6

P = 13.8 mW

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

12.6 dBat 680 MHz

Max. limit exceeding

_____ dB

at _____ MHz

EuT: HT4000 Band III working on 750 MHz:

Frequency [MHz]	Reading Vert. [dBμV]	Reading Hor. [dBμV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBμV/m]	Level Hor. [dBμV/m]	Limit [dBμV/m]	Dlimit [dB]
749,97	80,0	70,9	29,8	29,8	109,8	100,7	121,4	-11,6

P = 17.4 mW

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

11.6 dBat 750 MHz

Max. limit exceeding

_____ dB

at _____ MHz

EuT: HT4000 Band IV working on 760 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
759,97	80,0	72,5	29,7	29,7	109,7	102,2	121,4	-11,7

P = 17.0 mW

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

11.7 dBat 760 MHz

Max. limit exceeding

_____ dB

at _____ MHz

EuT: HT4000 Band V working on 805 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
805,00	77,0	62,8	29,7	29,7	106,7	92,5	121,4	-14,7

P = 8.5 mW

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

14.7 dBat 805 MHz

Max. limit exceeding

_____ dB

at _____ MHz

EuT: HT4000 Band VI working on 865 MHz:

Frequency [MHz]	Reading Vert. [dBµV]	Reading Hor. [dBµV]	Correct. Vert. [dB]	Correct. Hor. [dB]	Level Vert. [dBµV/m]	Level Hor. [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
865,01	75,7	70,0	32,5	32,5	108,2	102,5	121,4	-13,2

P = 12.0 mW

The requirements are

■ - MET

○ - NOT MET

Min. limit margin

11.8 dBat 650.1 MHz

Max. limit exceeding

_____ dB

at _____ MHz

Remarks: The limits are met.

**CONDUCTED POWER OF THE FUNDAMENTAL WAVE MEASURED
ON THE ANTENNA TERMINALS**

■ - Test not applicable

Test location :

- o - Shielded room no. 1
- o - Shielded room no. 2
- o - Shielded room no. 3
- o - Shielded room no. 4
- o - Shielded room no. 5
- o - Shielded room no. 6
- o - Shielded room no. 7
- o - Anechoic chamber
- o - Full compact chamber
- o - Climatic test chamber VLK

For TEST EQUIPMENT USED please refer to ATTACHMENT D: _____

Description of Measurement

The conducted power of the fundamental wave measured on the antenna terminals in a climatic test chamber. The antenna jack was connected to the input of a communication test receiver. The internal batteries have been removed also and a variable DC power supply was used instead. The measurements have been made with the EUT unmodulated. During the test the supply voltage and the temperature were varied and applied simultaneously. The lower supply voltage was given by the manufacturer. In case the equipment was switching off before, the switch off voltage was used instead.

Testresult

Frequency range of equipment								
Temperature/°C	DC supply voltage/V	Power/dBm	Power/dBm	Power/dBm	Power/dBm	Power/dBm	Power/dBm	Power/dBm
-30								
-20								
-10								
0								
+10								
+20								
+30								
+40								
+50								

The requirements are

0 - MET

0 - NOT MET

Remarks: Not applicable.

MODULATION LIMITING DATA

o - Test not applicable

Test location :

- o - Shielded room no. 1
- o - Shielded room no. 2
- o - Shielded room no. 3
- - Shielded room no. 4
- o - Shielded room no. 5
- o - Shielded room no. 6
- o - Shielded room no. 7
- o - Anechoic chamber
- o - Full compact chamber
- o - Climatic test chamber VLK

For TEST EQUIPMENT USED please refer to ATTACHMENT D: MLD _____

Description of Measurement

The modulation limiting data were measured on the antenna terminals for EUT's with external connector. Other EUT's are tested via an adequate coupling device with antenna jack. The antenna jack was connected to the input of a communication test receiver. The internal batteries of the EUT, have been removed also and an external DC power supply was used instead. The data have been taken by feeding the connectors used for connecting the microphone with different audio frequencies. These frequencies are generated in the communication test receiver. The level was varied in 10 dB steps from 20 dB μ V to the maximum audio input level specified by the manufacturer. The frequency deviation at this levels have been recorded.

PFD: Positive frequency deviation

NFD: Negative frequency deviation

For the occupied bandwidth plot the value of 50 % of the maximum frequency deviation was calculated. The level on the audio input was increased until this 50 % frequency deviation was achieved. To this level 16 dB have been added and a plot was made as described in the next chapter under section occupied bandwidth.

Testresult

EuT: HT4000 Band I working on 650.1 MHz:

Input audio level/dBμV	$f_{\text{mod}} = 50 \text{ Hz}$		$f_{\text{mod}} = 1 \text{ kHz}$		$f_{\text{mod}} = 20 \text{ kHz}$	
	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz
20	1.9	-1.9	1.9	-2.0	2.0	-2.1
30	2.1	-2.1	1.9	-2.0	2.2	-2.3
40	2.1	-2.0	2.1	-2.2	2.7	-2.9
50	2.4	-2.4	2.4	-2.5	3.8	-3.9
60	2.8	-2.9	3.1	-3.2	5.7	-5.8
70	4.1	-4.1	4.5	-4.6	9.1	-9.2
80	6.1	-6.1	6.9	-7.0	15.0	-15.4
90	9.7	-10.1	11.1	-11.6	25.8	-26.4
100	16.3	-17.2	18.9	-19.5	38.4	-39.2
110	27.5	-28.9	31.9	-35.9	40.2	-40.0
110.9	28.5	-30.0	32.3	-36.2	40.3	-40.0

The requirements are **■ - MET 0 - NOT MET**Remarks: The limit of $\pm 75 \text{ kHz}$ is kept.(PFD=Positive frequency deviation; NFD=Negative Frequency deviation)

Judging the requirements of the emission mask with the data from the modulation limiting data:

EuT: HT4000 Band I working on 650.1 MHz:

Max. measured frequency deviation: $\pm 40.3 \text{ kHz}$ 50% of the maximum deviation: $\pm 20.2 \text{ kHz}$ Audio input level (ail) to get $\pm 14.5 \text{ kHz}$: $L = 85.0 \text{ dB}\mu\text{V}$ $L + 16 \text{ dB}\mu\text{V} = 101.0 \text{ dB}\mu\text{V} \Rightarrow$ Level for testing the occupied bandwidth**Occupied bandwidth:**

version of EUT	Band I		Band I		Band I		Band I	
audio test level	$L = 101.0 \text{ dB}\mu\text{V}$		$L = 101.0 \text{ dB}\mu\text{V}$		$L = 101.0 \text{ dB}\mu\text{V}$		$L = 101.0 \text{ dB}\mu\text{V}$	
	1 kHz		7.5 kHz		15 kHz		20 kHz	
shape of emission mask	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]
min. limit margin/dB	> 30	> 25	> 30	> 25	> 25	> 25	> 15	> 25

Remarks: The limit is kept. For plot see page A1-A4.

EuT: HT4000 Band II working on 680 MHz:

Input audio level/dBμV	$f_{\text{mod}} = 50 \text{ Hz}$		$f_{\text{mod}} = 1 \text{ kHz}$		$f_{\text{mod}} = 20 \text{ kHz}$	
	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz
20	2.1	-1.9	2.2	-2.1	2.2	-2.1
30	2.2	-2.1	2.2	-2.1	2.4	-2.3
40	2.2	-2.1	2.3	-2.2	3.0	-2.9
50	2.4	-2.4	2.6	-2.6	4.1	-4.1
60	3.0	-3.0	3.4	-3.3	6.1	-6.1
70	4.5	-4.3	4.9	-4.9	10.0	-9.9
80	6.7	-6.6	7.6	-7.5	16.6	-16.3
90	10.9	-10.8	12.6	-12.4	28.4	-28.2
100	18.2	-18.5	21.4	-21.0	43.3	-43.1
110	30.7	-31.4	38.3	-39.0	45.5	-44.4
110.9	31.8	-32.6	38.6	-39.4	45.6	-44.4

The requirements are **■ - MET 0 - NOT MET**

Remarks: The limit of $\pm 75 \text{ kHz}$ is kept.

(PFD=Positive frequency deviation; NFD=Negative Frequency deviation)

Judging the requirements of the emission mask with the data from the modulation limiting data:

EuT: HT4000 Band II working on 680 MHz:

Max. measured frequency deviation: $\pm 45.6 \text{ kHz}$

50% of the maximum deviation: $\pm 22.8 \text{ kHz}$

Audio input level (ail) to get $\pm 14.5 \text{ kHz}$: $L = 86.0 \text{ dB}\mu\text{V}$

$L + 16 \text{ dB}\mu\text{V} = 102.0 \text{ dB}\mu\text{V} \Rightarrow$ Level for testing the occupied bandwidth

Occupied bandwidth:

version of EUT	Band II		Band II		Band II		Band II	
audio test level	L = 102.0 dBμV 1 kHz		L = 102.0 dBμV 7.5 kHz		L = 102.0 dBμV 15 kHz		L = 102.0 dBμV 20 kHz	
shape of emission mask	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]
min. limit margin/dB	> 30	> 25	> 25	> 25	> 15	> 25	> 10	> 25

Remarks: The limit is kept. For plot see page A5-A8.

EuT: HT4000 Band III working on 750 MHz:

Input audio level/dBμV	$f_{\text{mod}} = 50 \text{ Hz}$		$f_{\text{mod}} = 1 \text{ kHz}$		$f_{\text{mod}} = 20 \text{ kHz}$	
	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz
20	1.3	-1.2	1.3	-1.3	1.3	-1.3
30	1.3	-1.3	1.3	-1.3	1.5	-1.5
40	1.3	-1.4	1.4	-1.4	1.9	-1.9
50	1.5	-1.4	1.7	-1.7	2.7	-2.6
60	1.9	-1.9	2.2	-2.2	4.1	-4.1
70	2.9	-2.8	3.3	-3.2	6.6	-6.6
80	4.4	-4.3	5.1	-5.1	11.0	-10.8
90	7.2	-7.2	8.5	-8.4	19.0	-18.9
100	12.2	-11.9	14.4	-14.2	28.5	-28.6
110	20.9	-20.4	23.4	-26.8	30.3	-29.5
110.9	21.9	-21.3	23.7	-28.2	30.4	-29.5

The requirements are **■ - MET 0 - NOT MET**Remarks: The limit of $\pm 75 \text{ kHz}$ is kept.

(PFD=Positive frequency deviation; NFD=Negative Frequency deviation)

Judging the requirements of the emission mask with the data from the modulation limiting data:

EuT: HT4000 Band III working on 750 MHz:

Max. measured frequency deviation: $\pm 30.4 \text{ kHz}$ 50% of the maximum deviation: $\pm 15.2 \text{ kHz}$ Audio input level (ail) to get $\pm 14.5 \text{ kHz}$: $L = 85.9 \text{ dB}\mu\text{V}$ $L + 16 \text{ dB}\mu\text{V} = 101.9 \text{ dB}\mu\text{V} \Rightarrow$ Level for testing the occupied bandwidth**Occupied bandwidth:**

version of EUT	Band III		Band III		Band III		Band III	
audio test level	$L = 101.9 \text{ dB}\mu\text{V}$ 1 kHz		$L = 101.9 \text{ dB}\mu\text{V}$ 7.5 kHz		$L = 101.9 \text{ dB}\mu\text{V}$ 15 kHz		$L = 101.9 \text{ dB}\mu\text{V}$ 20 kHz	
shape of emission mask	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]
min. limit margin/dB	> 30	> 25	> 30	> 25	> 25	> 25	> 20	> 25

Remarks: The limit is kept. For plot see page A9-A12.

EuT: HT4000 Band IV working on 760 MHz:

Input audio level/dBμV	$f_{\text{mod}} = 50 \text{ Hz}$		$f_{\text{mod}} = 1 \text{ kHz}$		$f_{\text{mod}} = 20 \text{ kHz}$	
	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz
20	1.8	-1.9	1.9	-2.0	2.0	-2.0
30	1.8	-2.0	1.9	-2.0	2.3	-2.2
40	1.9	-2.1	2.1	-2.2	2.8	-2.8
50	2.3	-2.4	2.5	-2.5	3.9	-4.0
60	2.9	-3.0	3.2	-3.3	5.9	-5.9
70	4.2	-4.2	4.8	-4.8	9.6	-9.6
80	6.5	-6.4	7.4	-7.5	15.8	-16.2
90	10.5	-10.6	12.0	-12.6	27.2	-27.9
100	17.4	-18.2	20.6	-21.1	40.0	-40.4
110	29.7	-30.7	36.6	-35.6	41.4	-41.2
110.9	31.0	-32.1	36.8	-35.9	41.5	-41.2

The requirements are **■ - MET 0 - NOT MET**Remarks: The limit of $\pm 75 \text{ kHz}$ is kept.

(PFD=Positive frequency deviation; NFD=Negative Frequency deviation)

Judging the requirements of the emission mask with the data from the modulation limiting data:

EuT: HT4000 Band IV working on 760 MHz:

Max. measured frequency deviation: $\pm 41.5 \text{ kHz}$ 50% of the maximum deviation: $\pm 20.8 \text{ kHz}$ Audio input level (ail) to get $\pm 14.5 \text{ kHz}$: $L = 84.6 \text{ dB}\mu\text{V}$ $L + 16 \text{ dB}\mu\text{V} = 100.6 \text{ dB}\mu\text{V} \Rightarrow$ Level for testing the occupied bandwidth**Occupied bandwidth:**

version of EUT	Band IV		Band IV		Band IV		Band IV	
audio test level	$L = 100.6 \text{ dB}\mu\text{V}$ 1 kHz		$L = 100.6 \text{ dB}\mu\text{V}$ 7.5 kHz		$L = 100.6 \text{ dB}\mu\text{V}$ 15 kHz		$L = 100.6 \text{ dB}\mu\text{V}$ 20 kHz	
shape of emission mask	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]
min. limit margin/dB	> 30	> 25	> 25	> 25	> 25	> 25	> 15	> 25

Remarks: The limit is kept. For plot see page A13-A16.

EuT: HT4000 Band V working on 805 MHz:

Input audio level/dBμV	$f_{\text{mod}} = 50 \text{ Hz}$		$f_{\text{mod}} = 1 \text{ kHz}$		$f_{\text{mod}} = 20 \text{ kHz}$	
	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz
20	2.3	-2.2	2.3	-2.2	2.4	-2.2
30	2.3	-2.2	2.3	-2.3	2.6	-2.5
40	2.3	-2.3	2.4	-2.3	3.2	-3.1
50	2.6	-2.6	2.8	-2.7	4.3	-4.3
60	3.3	-3.2	3.7	-3.6	6.6	-6.4
70	4.8	-4.7	5.3	-5.2	10.5	-10.5
80	7.2	-7.2	8.2	-8.1	17.3	-17.1
90	11.8	-11.5	13.4	-13.1	29.6	-29.4
100	19.7	-19.5	22.7	-22.4	44.3	-43.9
110	33.7	-33.7	40.2	-39.3	46.1	-44.9
110.9	34.7	-35.1	40.5	-39.6	46.2	-44.9

The requirements are **■ - MET 0 - NOT MET**

Remarks: The limit of $\pm 75 \text{ kHz}$ is kept.

(PFD=Positive frequency deviation; NFD=Negative Frequency deviation)

Judging the requirements of the emission mask with the data from the modulation limiting data:

EuT: HT4000 Band V working on 805 MHz:

Max. measured frequency deviation: $\pm 46.2 \text{ kHz}$

50% of the maximum deviation: $\pm 23.1 \text{ kHz}$

Audio input level (ail) to get $\pm 14.5 \text{ kHz}$: $L = 85.5 \text{ dB}\mu\text{V}$

$L + 16 \text{ dB}\mu\text{V} = 91.5 \text{ dB}\mu\text{V} \Rightarrow$ Level for testing the occupied bandwidth

Occupied bandwidth:

version of EUT	Band V		Band V		Band V		Band V	
audio test level	$L = 91.5 \text{ dB}\mu\text{V}$		$L = 91.5 \text{ dB}\mu\text{V}$		$L = 91.5 \text{ dB}\mu\text{V}$		$L = 91.5 \text{ dB}\mu\text{V}$	
	1 kHz		7.5 kHz		15 kHz		20 kHz	
shape of emission mask	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 100\text{-}250\%$ [dB]	$\pm 50\text{-}100\%$ [dB]	$\pm 100\text{-}250\%$ [dB]
min. limit margin/dB	> 30	> 25	> 30	> 25	> 25	> 25	> 20	> 25

Remarks: The limit is kept. For plot see page A17-A20.

EuT: HT4000 Band VI working on 865 MHz:

Input audio level/dBμV	$f_{\text{mod}} = 50 \text{ Hz}$		$f_{\text{mod}} = 1 \text{ kHz}$		$f_{\text{mod}} = 20 \text{ kHz}$	
	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz	PFD/kHz	NFD/kHz
20	1.5	-15.6	1.5	-1.6	1.6	-1.7
30	1.5	-1.6	1.6	-1.6	1.8	-1.8
40	1.6	-1.6	1.6	-1.6	2.2	-2.2
50	1.7	-1.8	1.9	-1.9	3.0	-3.1
60	2.2	-2.3	2.4	-2.5	4.5	-4.5
70	3.1	-3.2	3.6	-3.6	7.2	-7.3
80	4.8	-4.8	5.5	-5.6	11.8	-12.3
90	7.8	-7.8	9.1	-9.1	20.6	-21.1
100	12.8	-13.2	15.2	-15.7	31.2	-31.9
110	22.4	-22.3	25.2	-29.6	33.0	-32.8
110.9	23.4	-23.5	25.6	-30.0	33.0	-32.8

The requirements are **■ - MET 0 - NOT MET**Remarks: The limit of $\pm 75 \text{ kHz}$ is kept.

(PFD=Positive frequency deviation; NFD=Negative Frequency deviation)

Judging the requirements of the emission mask with the data from the modulation limiting data:

EuT: PT4000 Band VI working on 865.0 MHz:

Max. measured frequency deviation: $\pm 33.0 \text{ kHz}$ 50% of the maximum deviation: $\pm 16.5 \text{ kHz}$ Audio input level (ail) to get $\pm 14.5 \text{ kHz}$: $L = 85.5 \text{ dB}\mu\text{V}$ $L + 16 \text{ dB}\mu\text{V} = 101.5 \text{ dB}\mu\text{V} \Rightarrow$ Level for testing the occupied bandwidth**Occupied bandwidth:**

version of EUT	Band VI		Band VI		Band VI		Band VI	
audio test level	$L = 101.5 \text{ dB}\mu\text{V}$ 1 kHz		$L = 101.5 \text{ dB}\mu\text{V}$ 7.5 kHz		$L = 101.5 \text{ dB}\mu\text{V}$ 15 kHz		$L = 101.5 \text{ dB}\mu\text{V}$ 20 kHz	
shape of emission mask	$\pm 50-100\%$ [dB]	$\pm 100-250\%$ [dB]	$\pm 50-100\%$ [dB]	$\pm 50-100\%$ [dB]	$\pm 100-250\%$ [dB]	$\pm 100-250\%$ [dB]	$\pm 50-100\%$ [dB]	$\pm 100-250\%$ [dB]
min. limit margin/dB	> 30	> 25	> 30	> 25	> 25	> 25	> 25	> 25

Remarks: The limit is kept. For plot see page A21-A24.

FREQUENCY ERROR

o - Test not applicable

Testlocation :

- o - Shielded room no. 1
- o - Shielded room no. 2
- o - Shielded room no. 3
- - Shielded room no. 4
- o - Shielded room no. 5
- o - Shielded room no. 6
- o - Shielded room no. 7
- o - Anechoic chamber
- o - Full compact chamber
- - Climatic test chamber VLK

For TEST EQUIPMENT USED please refer to ATTACHMENT D: FE _____

Description of Measurement

The frequency error was measured on the antenna terminals for EUT's with external connector. Other EUT's are tested via an adequate coupling device with antenna jack in a climatic test chamber. The antenna jack was connected to the input of a communication test receiver. The internal batteries have been removed also and a variable DC power supply was used instead. The measurements have been made with the EUT unmodulated. During the test the supply voltage and the temperature were varied and applied simultaneously. The lower supply voltage was given by the manufacturer. In case the equipment was switching off before, the switch off voltage was used instead. The frequency error is defined as the deviation of the transmitting frequency from the nominal frequency.

Testresult

Frequency range of equipment		Band I 650.1 MHz	Band II 680 MHz	Band III 750 MHz	Band IV 760 MHz	Band V 805 MHz	Band VI 865 MHz
Temperature [°C]	DC supply voltage [V]	Frequency error [kHz]	Frequency error [kHz]	Frequency error [kHz]	Frequency error [kHz]	Frequency error [kHz]	Frequency error [kHz]
-30	2.1	-8.3	-7.1	-6.5	-4.0	-6.6	5.3
	3.2	-8.2	-6.8	-7.3	-3.9	-6.9	5.4
-20	2.1	-4.5	-2.4	-3.5	-0.2	-2.6	7.7
	3.2	-4.5	-2.4	-3.5	-0.1	-2.4	7.8
-10	2.1	-2.1	0.8	1.1	2.0	0.7	9.4
	3.2	-2.0	0.9	1.2	2.0	0.7	9.4
0	2.1	-1.1	2.4	2.4	2.7	1.9	8.5
	3.2	-1.1	2.4	2.5	2.7	2.0	8.5
+10	2.1	-1.0	2.9	2.9	2.8	2.6	6.7
	3.2	-1.0	2.9	2.9	2.8	2.6	6.7
+20	2.1	-1.5	3.0	2.9	1.8	2.3	4.1
	3.2	-1.5	3.0	2.9	1.8	2.4	4.1
+30	2.1	-1.4	2.8	2.7	0.9	2.0	1.9
	3.2	-1.6	2.8	2.7	0.9	2.0	2.0
+40	2.1	-1.9	3.0	2.8	0.6	1.9	0.1
	3.2	-1.9	3.0	2.8	0.6	2.0	0.2
+50	2.1	-1.5	3.6	3.7	0.6	2.6	-0.8
	3.2	-1.5	3.7	3.8	0.6	2.8	-0.9

The requirements are **■ - MET 0 - NOT MET**

Remarks: The most strict limit for this frequency range is: 32.5 kHz
(0.005% of 650.1 MHz)

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

0 - Test not applicable

Test location :

- o - Shielded room no. 1
- o - Shielded room no. 2
- o - Shielded room no. 3
- - Shielded room no. 4
- o - Shielded room no. 5
- o - Shielded room no. 6
- o - Shielded room no. 7
- o - Anechoic chamber
- o - Climatic test chamber VLK

For TEST EQUIPMENT USED please refer to ATTACHMENT D: EM

Description of Measurement

The requirements of the emission mask were measured with different input signals on the antenna terminals for EUT's with external connector. Other EUT's are tested via an adequate coupling device with antenna jack. The antenna jack was connected to the input of a spectrum analyzer. The spectrum analyzer was set up as following:

- video and resolution bandwidth: 10 kHz
- attenuation: automatic, low noise
- center frequency: nominal transmit frequency
- frequency span: 500 kHz

The reference level was set to the maximum value of the unmodulated carrier. The internal batteries have been removed also and a variable DC power supply was used instead. The measurements have been made with a modulation frequency and voltage accdg. to the specification of the manufacturer. The audio frequency was provided by a communication test receiver. During the test the supply voltage and the temperature were varied and applied simultaneously. The lower supply voltage was given by the manufacturer. In case the equipment was switching off before, the switch off voltage was used instead.

Testresult

The following table is showing the minimal margin to the required attenuations:

Frequency range of equipment		Band I 650.1 MHz	
input modulation	DCsupply voltage [V]	±50-100% [dB]	±100-250% [dB]
1 KHz	2.1	>40	>35
101.0 dBµV	3.2	>35	>30
15 KHz	2.1	>25	>35
101.0 dBµV	3.2	>20	>30
20 KHz	2.1	>15	>35
101.0 dBµV	3.2	>15	>30
1 KHz	2.1	>35	>35
350 mV	3.2	>35	>25
15 KHz	2.1	>20	>35
350 mV	3.2	>20	>30
20 KHz	2.1	>15	>35
350 mV	3.2	>15	>30

Remarks: For plot see page A25-A36.

Frequency range of equipment		Band II 680 MHz	
input modulation	DCsupply voltage [V]	±50-100% [dB]	±100-250% [dB]
1 KHz	2.1	>40	>35
102.0 dBµV	3.2	>35	>30
15 KHz	2.1	>15	>35
102.0 dBµV	3.2	>15	>30
20 KHz	2.1	>15	>35
102.0 dBµV	3.2	>10	>30
1 KHz	2.1	>30	>30
350 mV	3.2	>30	>30
15 KHz	2.1	>15	>35
350 mV	3.2	>10	>30
20 KHz	2.1	>10	>30
350 mV	3.2	>10	>30

Remarks: For plot see page A37-A48.

Frequency range of equipment		Band III 750 MHz	
input modulation	DCsupply voltage [V]	±50-100% [dB]	±100-250% [dB]
1 KHz	2.1	>35	>30
101.9 dBµV	3.2	>35	>30
15 KHz	2.1	>25	>30
101.9 dBµV	3.2	>25	>30
20 KHz	2.1	>25	>30
101.9 dBµV	3.2	>25	>30
1 KHz	2.1	>35	>30
350 mV	3.2	>35	>30
15 KHz	2.1	>25	>30
350 mV	3.2	>25	>30
20 KHz	2.1	>20	>30
350 mV	3.2	>20	>30

Remarks: For plot see page A49-A60.

Frequency range of equipment		Band IV 680 MHz	
input modulation	DCsupply voltage [V]	±50-100% [dB]	±100-250% [dB]
1 KHz	2.1	>40	>35
100.6 dBµV	3.2	>35	>30
15 KHz	2.1	>20	>35
100.6 dBµV	3.2	>25	>35
20 KHz	2.1	>15	>35
100.6 dBµV	3.2	>15	>30
1 KHz	2.1	>35	>35
350 mV	3.2	>30	>30
15 KHz	2.1	>20	>35
350 mV	3.2	>20	>30
20 KHz	2.1	>15	>35
350 mV	3.2	>10	>30

Remarks: For plot see page A61-A72.

Frequency range of equipment		Band V 805 MHz	
input modulation	DC supply voltage [V]	±50-100% [dB]	±100-250% [dB]
1 KHz	2.1	>40	>35
91.5 dBµV	3.2	>40	>35
15 KHz	2.1	>25	>35
91.5 dBµV	3.2	>25	>35
20 KHz	2.1	>25	>35
91.5 dBµV	3.2	>20	>35
1 KHz	2.1	>30	>35
350 mV	3.2	>30	>30
15 KHz	2.1	>10	>35
350 mV	3.2	>10	>30
20 KHz	2.1	>10	>35
350 mV	3.2	>10	>35

Remarks: For plot see page A73-A84.

Frequency range of equipment		Band VI 865 MHz	
input modulation	DC supply voltage [V]	±50-100% [dB]	±100-250% [dB]
1 KHz	2.1	>35	>35
101.5 dBµV	3.2	>35	>30
15 KHz	2.1	>25	>35
101.5 dBµV	3.2	>25	>35
20 KHz	2.1	>25	>35
101.5 dBµV	3.2	>25	>30
1 KHz	2.1	>35	>35
350 mV	3.2	>35	>30
15 KHz	2.1	>25	>35
350 mV	3.2	>25	>35
20 KHz	2.1	>20	>30
350 mV	3.2	>20	>30

Remarks: For plot see page A85-A96.The requirements are **■ - MET** **0 - NOT MET**The **requirements** are as following:

Attenuation on any frequencies removed from the transmit frequency between 50 and 100 % of the authorized bandwidth: at least 25 dB
between 100 and 250 % of the authorized bandwidth: at least 35 dB
more than 250 % of the authorized bandwidth: see spurious emissions

Remarks: The limit is kept. The attenuation is related to the un-
modulated carrier.

EQUIPMENT UNDER TEST

Operation - mode of the EUT.:

The equipment under test was operated during the measurement under following conditions:

- ☐ - Standby
- ☐ - Testprogram (H - Pattern)
- ☐ - Testprogram (color bar)
- ☐ - Testprogram (customer specific)
- ☒ - Transmit (unmodulated)(for radiated measurements and frequency error)
- ☒ - Transmit (modulated: 20 kHz, 350 mV)(for bandwidth under extreme
conditions measurements)
- ☐ - _____

Configuration of the equipment under test: see appendix
Following periphery devices and interface cables were connected during the measurement:

- | | |
|-------------------------------|--------------|
| ☐ - _____ | Type : _____ |
| ☐ - _____ | Type : _____ |
| ☐ - _____ | Type : _____ |
| ☐ - _____ | Type : _____ |
| ☐ - _____ | Type : _____ |
| ☐ - _____ | Type : _____ |
-
- ☐ - unshielded power cable
 - ☐ - unshielded cables
 - ☐ - shielded cables MPS.No.:
 - ☒ - customer specific cables (wireless microphone)
 - ☐ - _____
 - ☐ - _____

SUMMARY

GENERAL REMARKS:

The product HT4000, has been tested on the following frequency:

- Band I: working on 650.1MHz
- Band II: working on 680MHz
- Band III: working on 750MHz
- Band IV: working on 760MHz
- Band V: working on 805MHz
- Band VI: working on 865MHz

FINAL JUDGEMENT:

The requirements according to the technical regulations and tested operation modes are

■ - met.

o - **not** met.

The equipment under test

■ - **Fulfills** the general approval requirements cited on page 3.

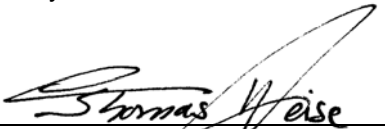
o - **Does not** fulfill the general approval requirements cited on page 3.

Date of receipt of test sample : accdg. to storage record

Testing Start Date : December 04, 2002

Testing End Date : March 10, 2003

Checked by:

i. A. 
Günter Mikes
Dipl.Ing.(FH)

Tested by:

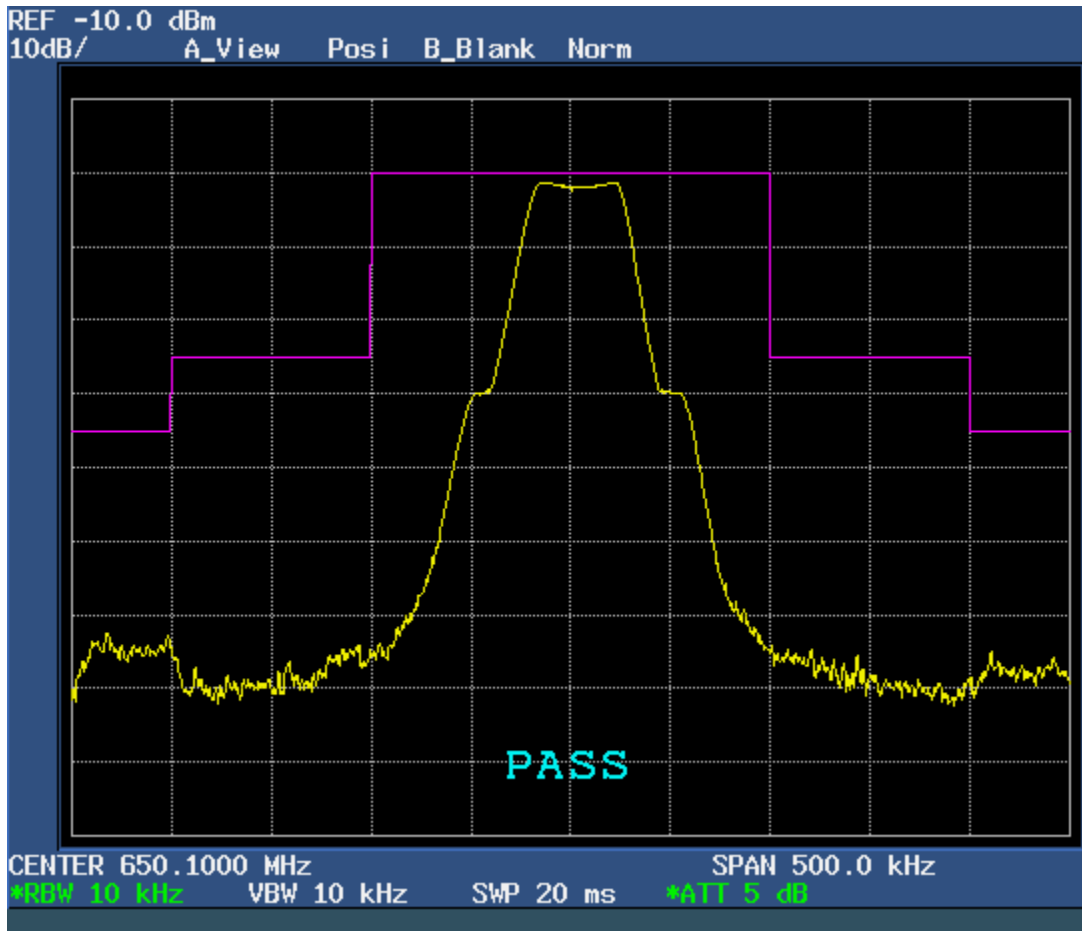

Josef Knab

FCC ID: E9MPT4000

OCCUPIED BANDWIDTH

HT4000

Band I - 650.1 MHz



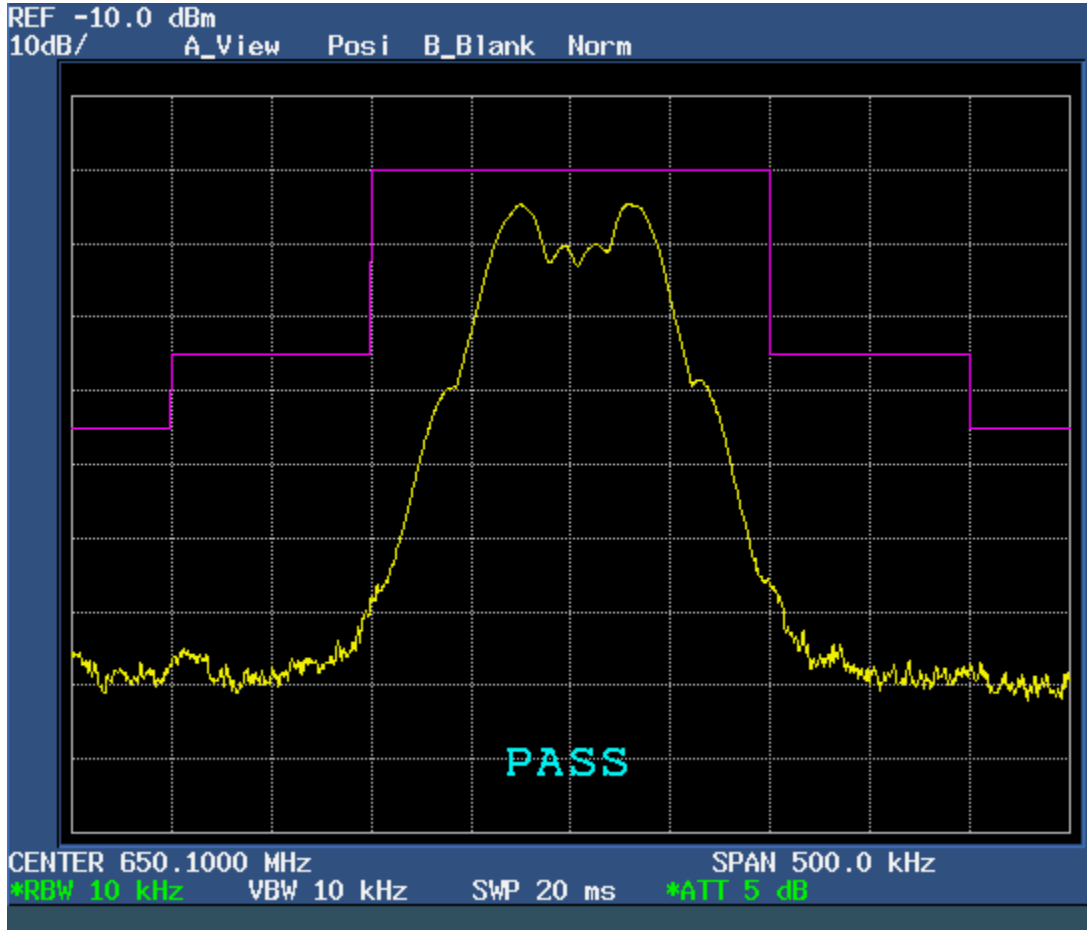
Audio test level: 101.0 dB μ V / 1 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band I - 650.1 MHz



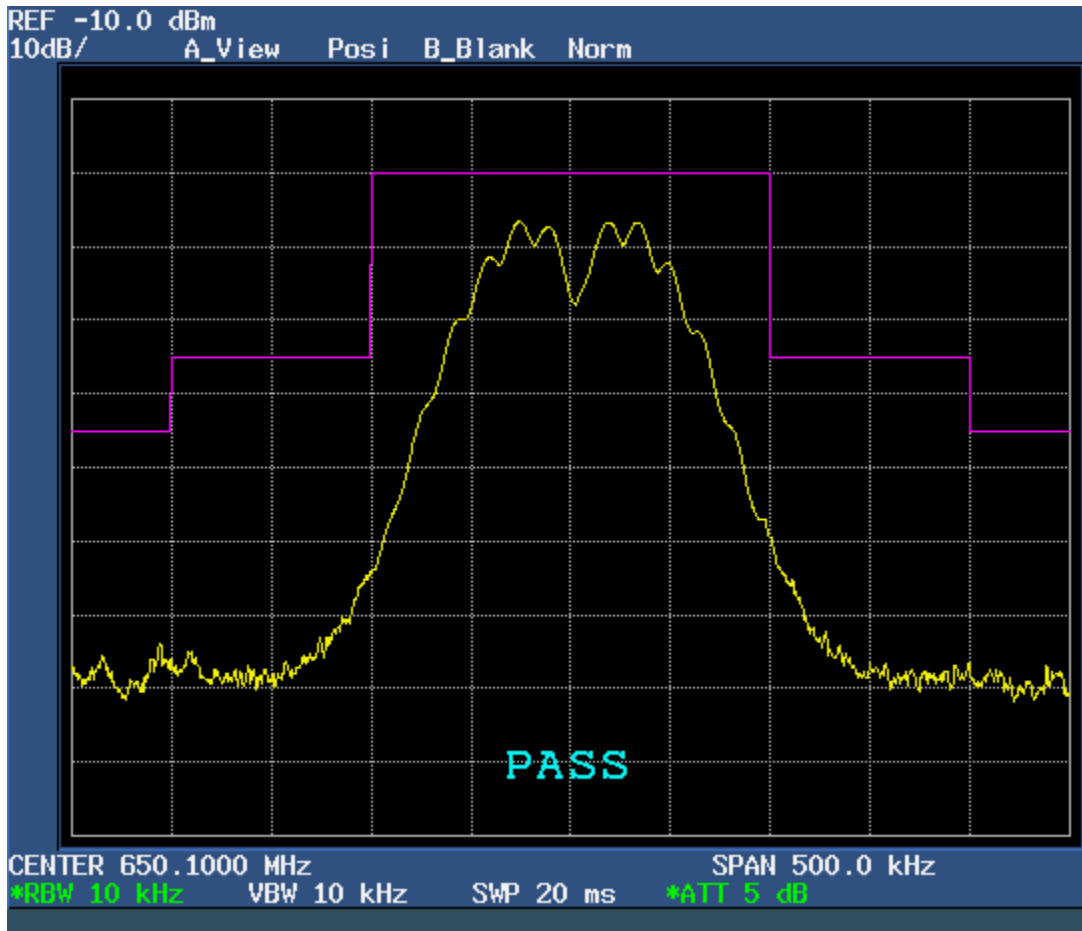
Audio test level: 101.0 dBμV / 7.5 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band I - 650.1 MHz



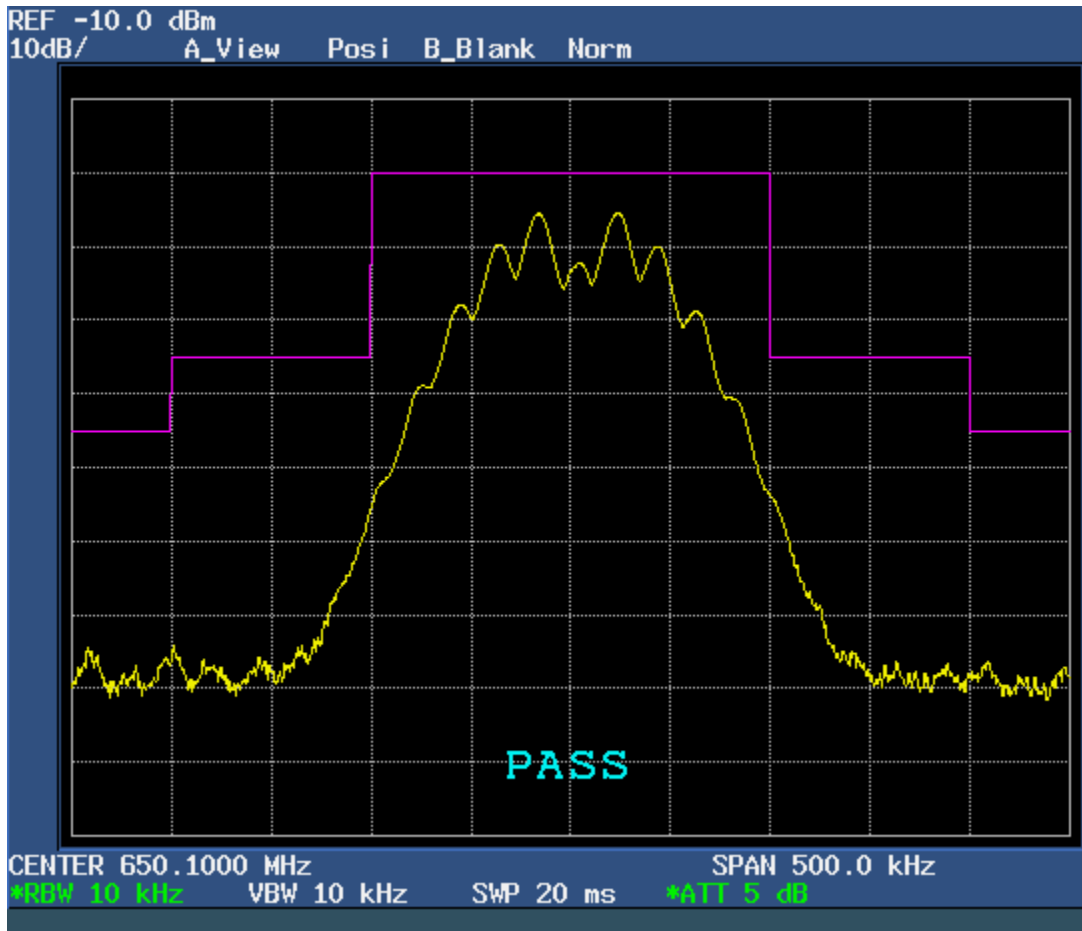
Audio test level: 101.0 dBμV / 15 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band I - 650.1 MHz



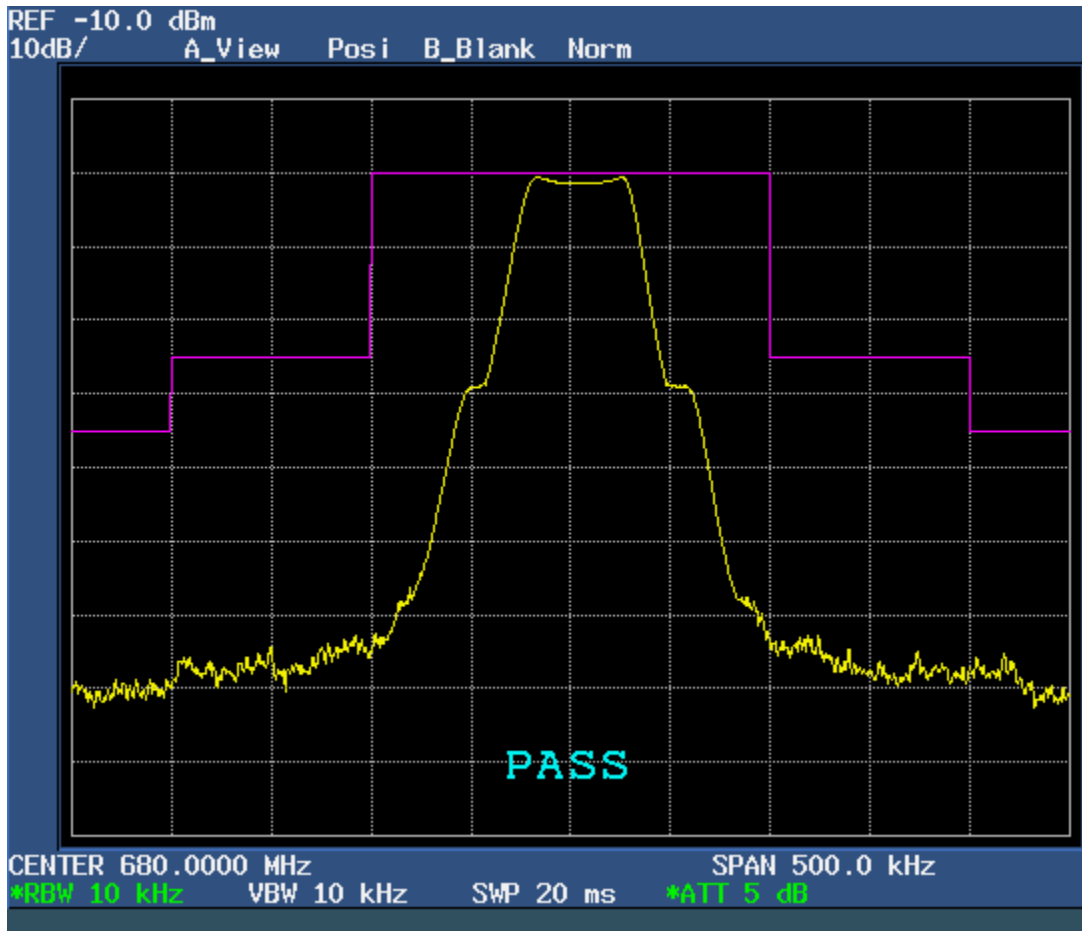
Audio test level: 101.0 dBμV / 20 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band II - 680 MHz



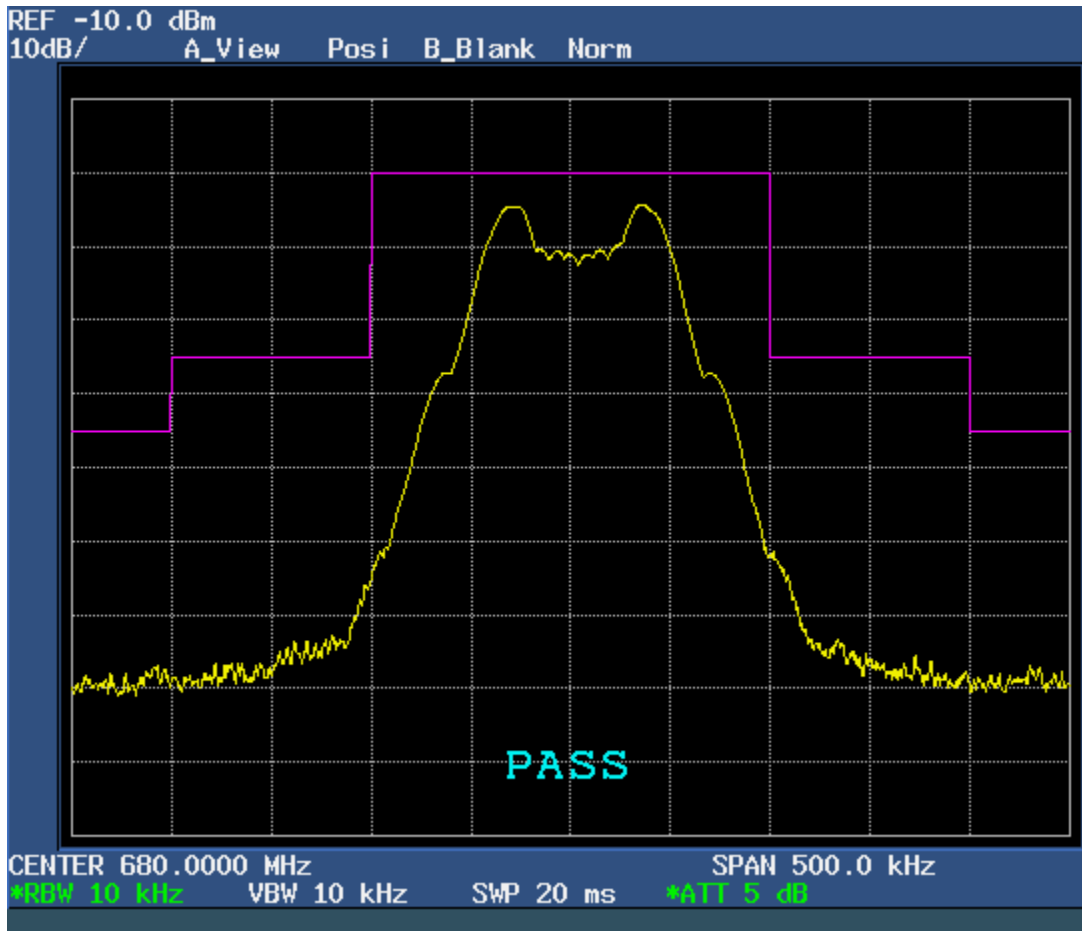
Audio test level: 102.0 dBμV / 1 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band II - 680 MHz



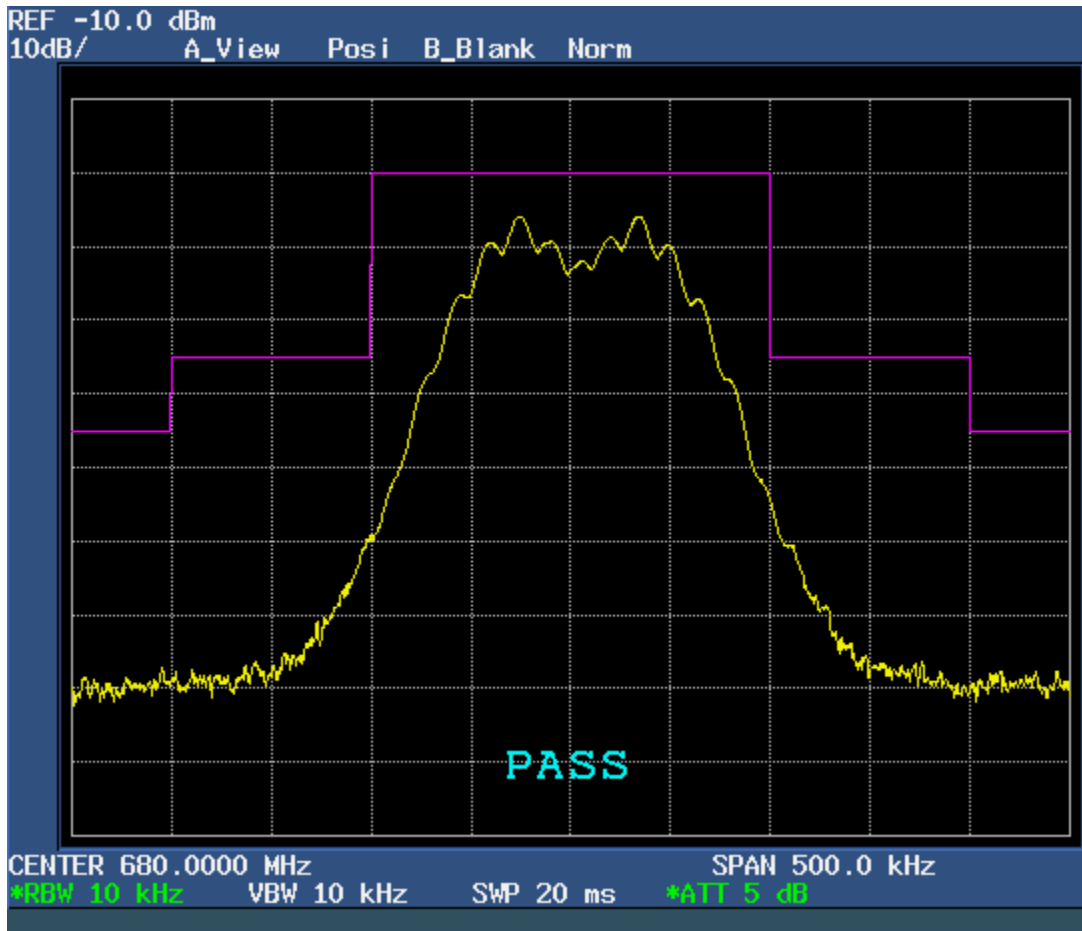
Audio test level: 102.0 dBμV / 7.5 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band II - 680 MHz



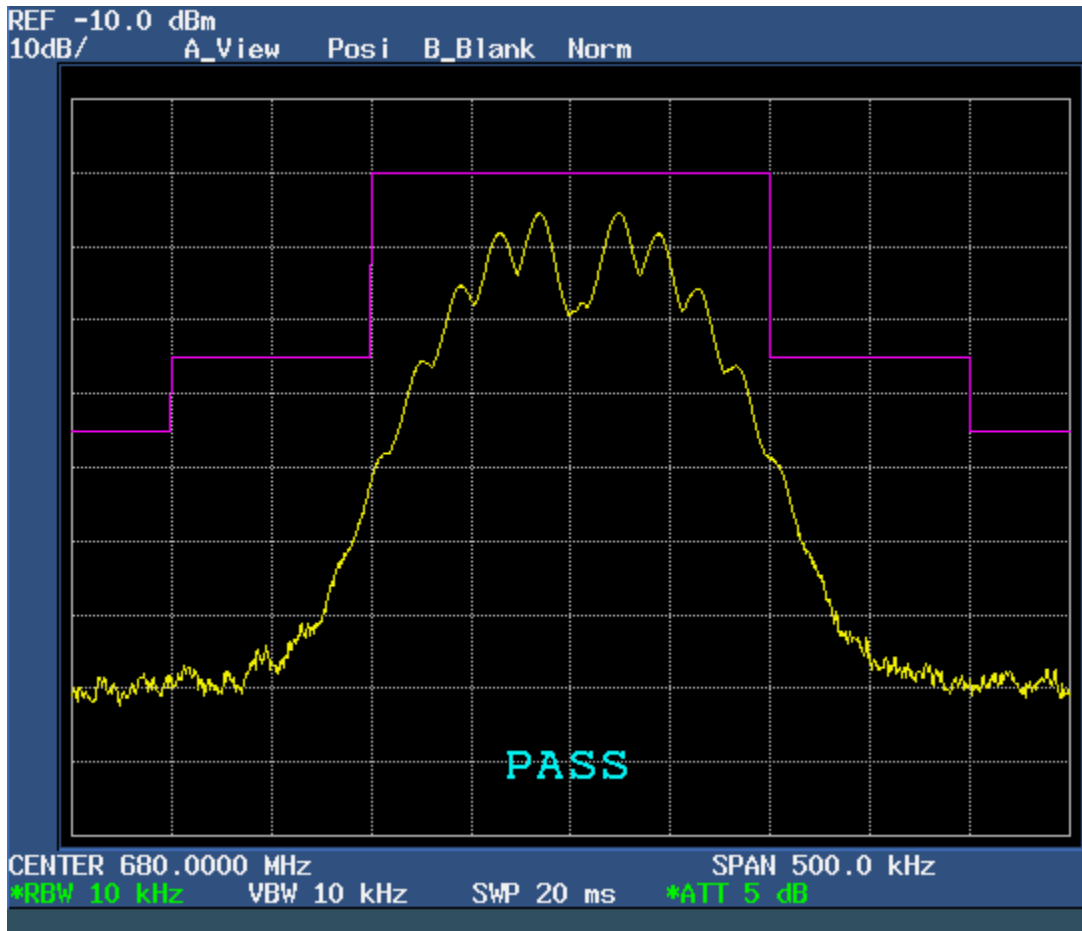
Audio test level: 102.0 dB μ V / 15 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band II - 680 MHz



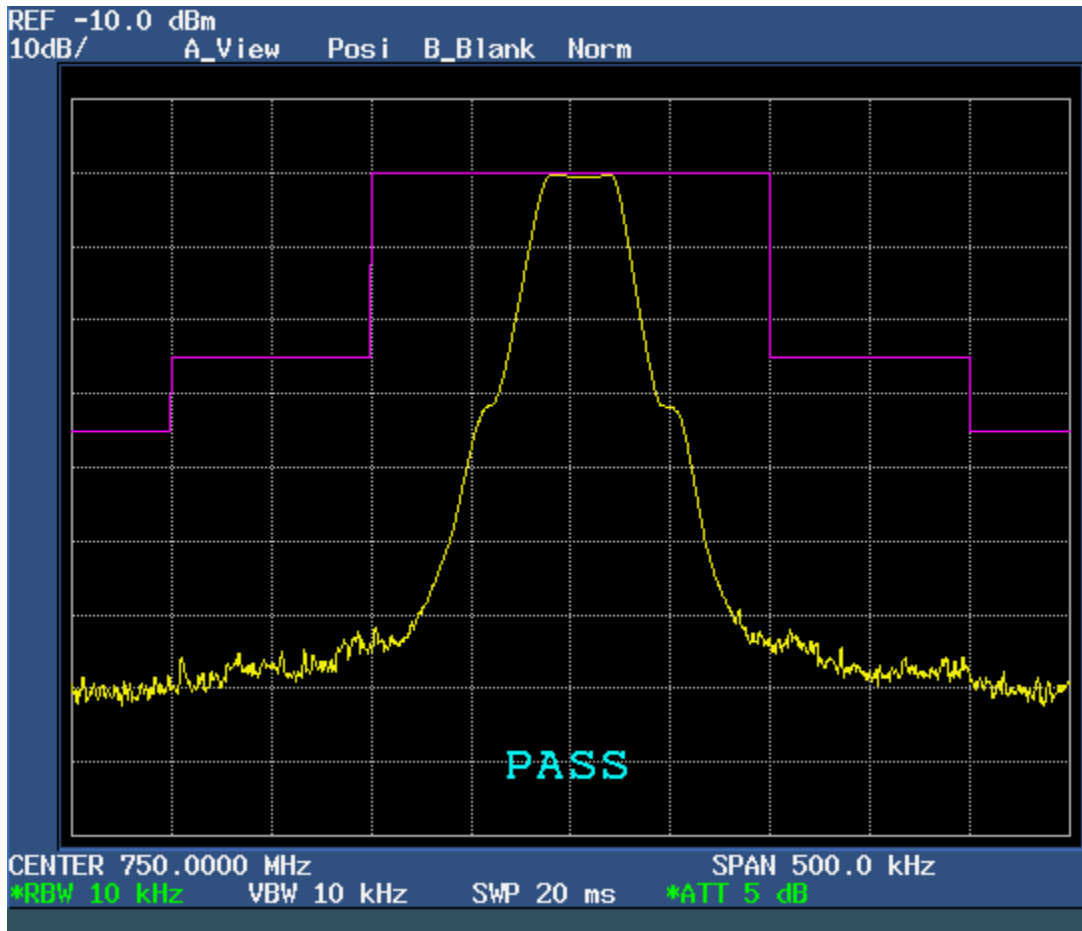
Audio test level: 102.0 dBμV / 20 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band III - 750 MHz



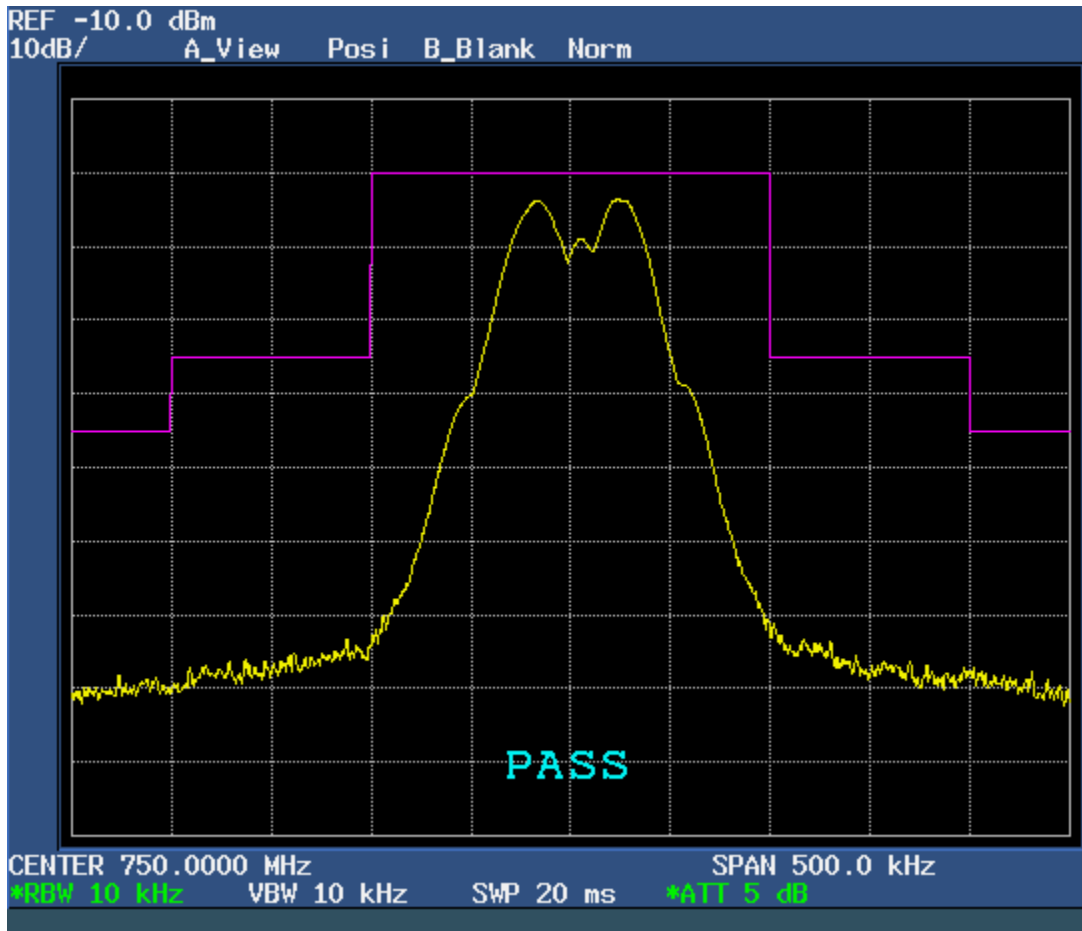
Audio test level: 101.9 dBμV / 1 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band III - 750 MHz



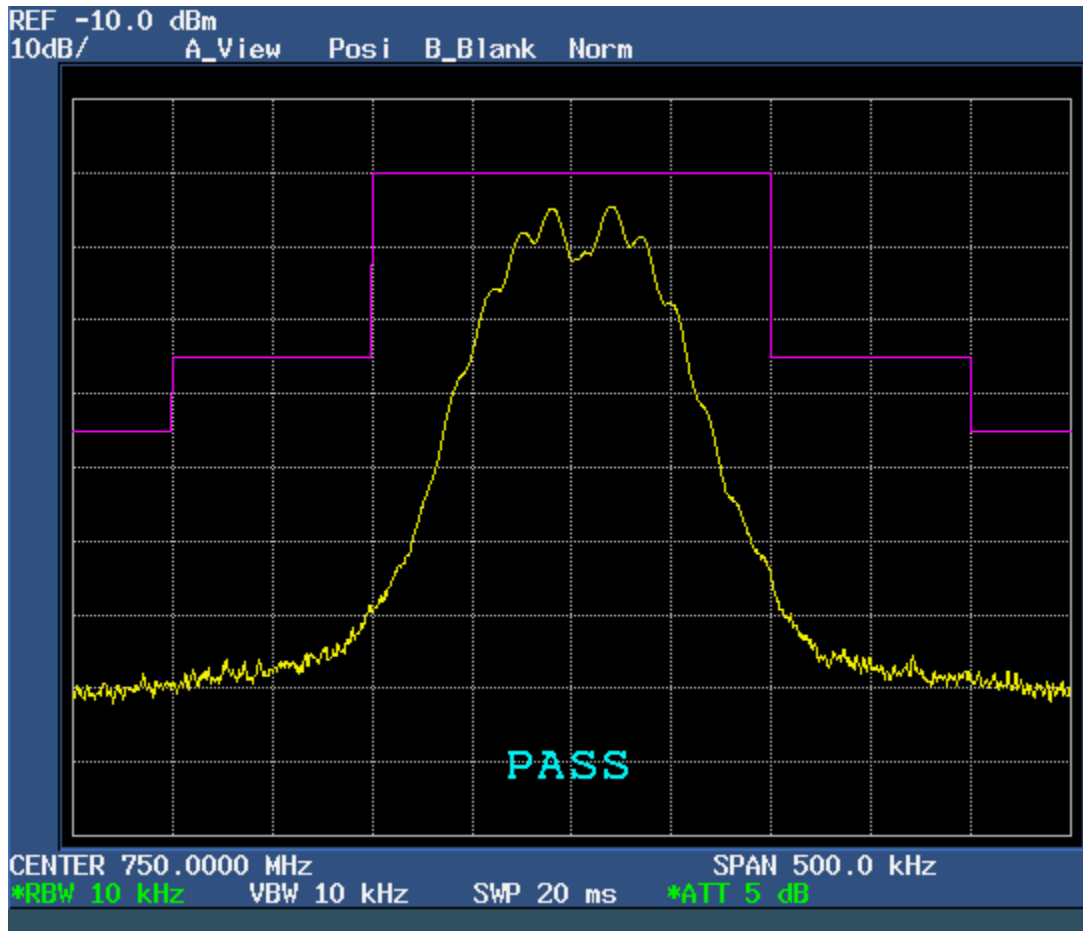
Audio test level: 101.9 dB μ V / 7.5 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band III - 750 MHz



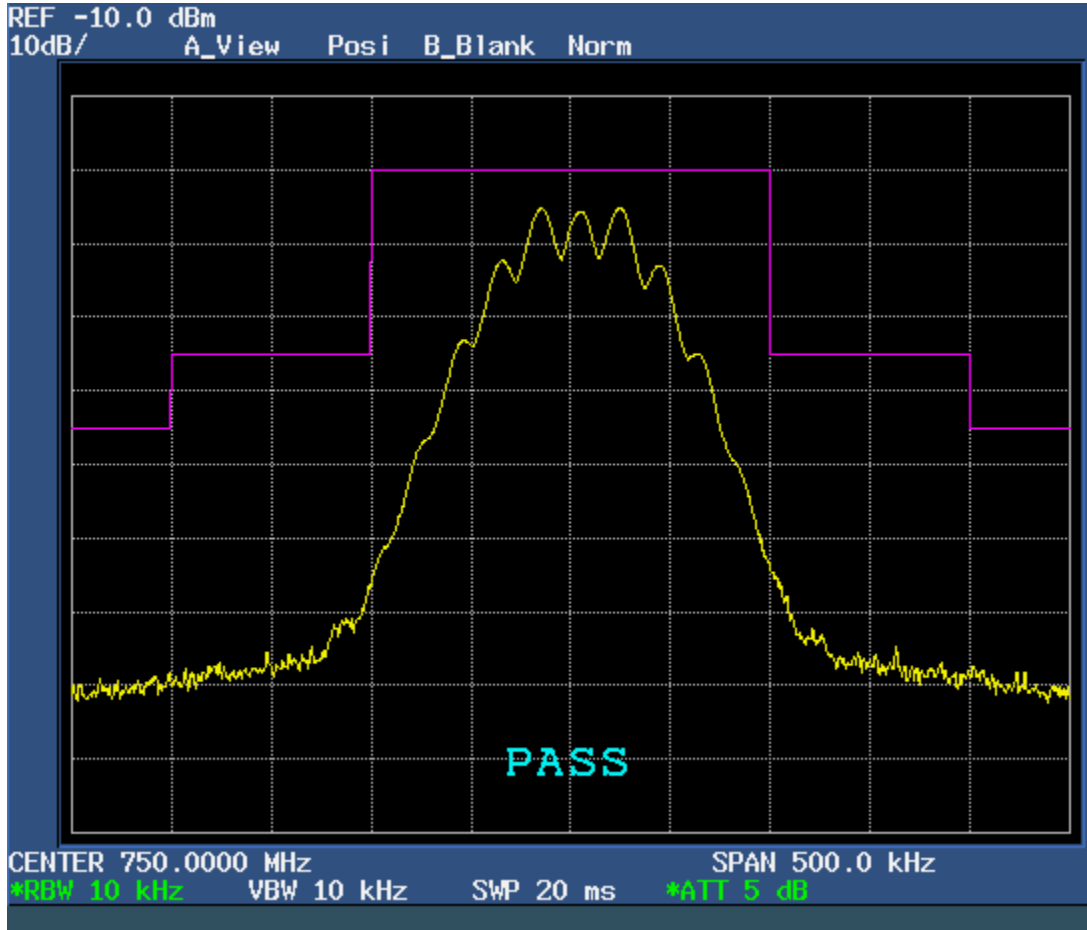
Audio test level: 101.9 dBμV / 15 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band III - 750 MHz



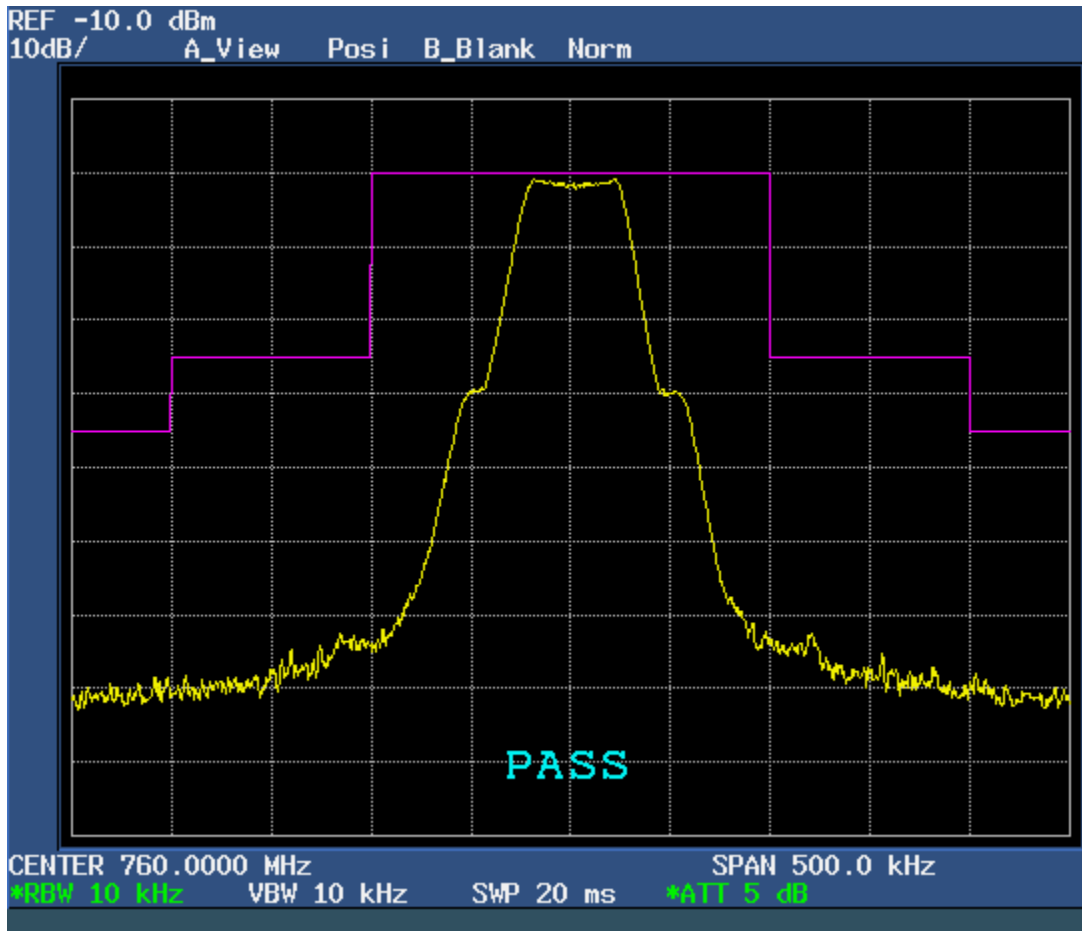
Audio test level: 101.9 dBμV / 20 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band IV - 760 MHz



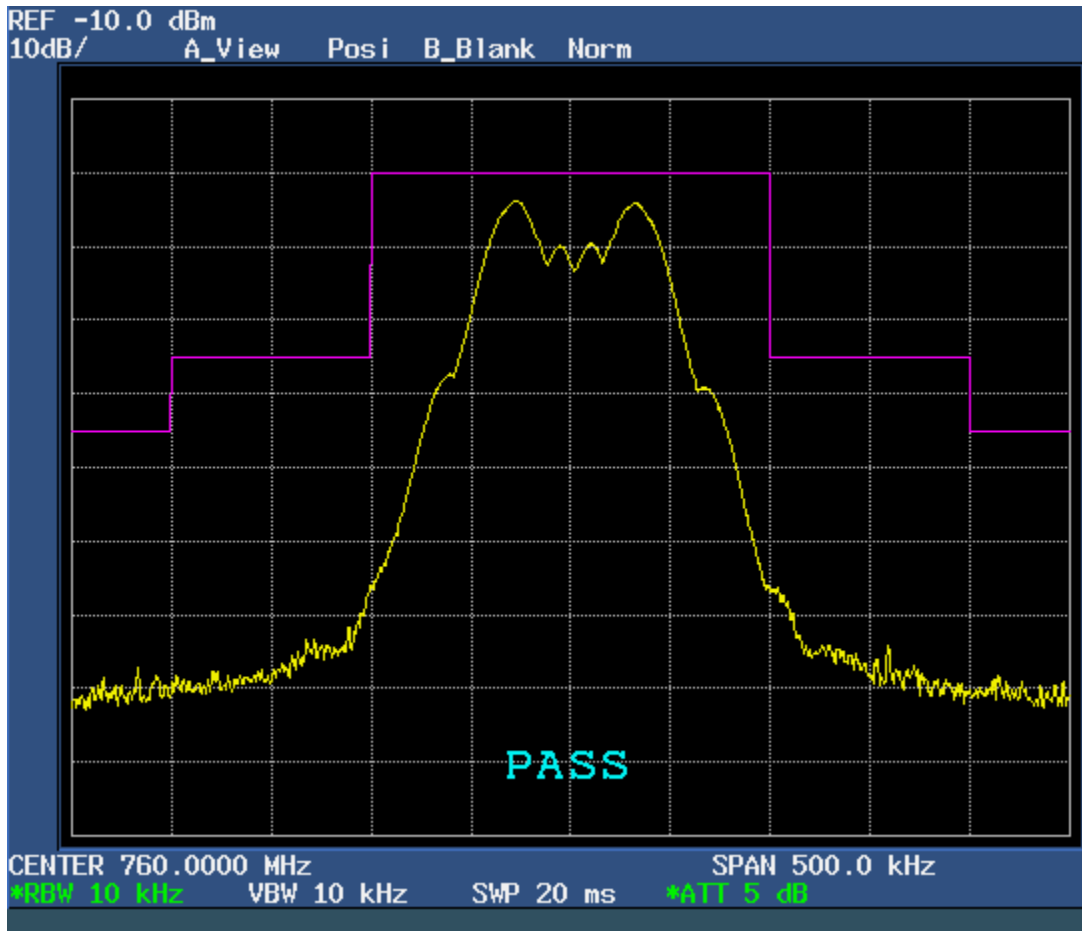
Audio test level: 100.6 dBμV / 1 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band IV - 760 MHz



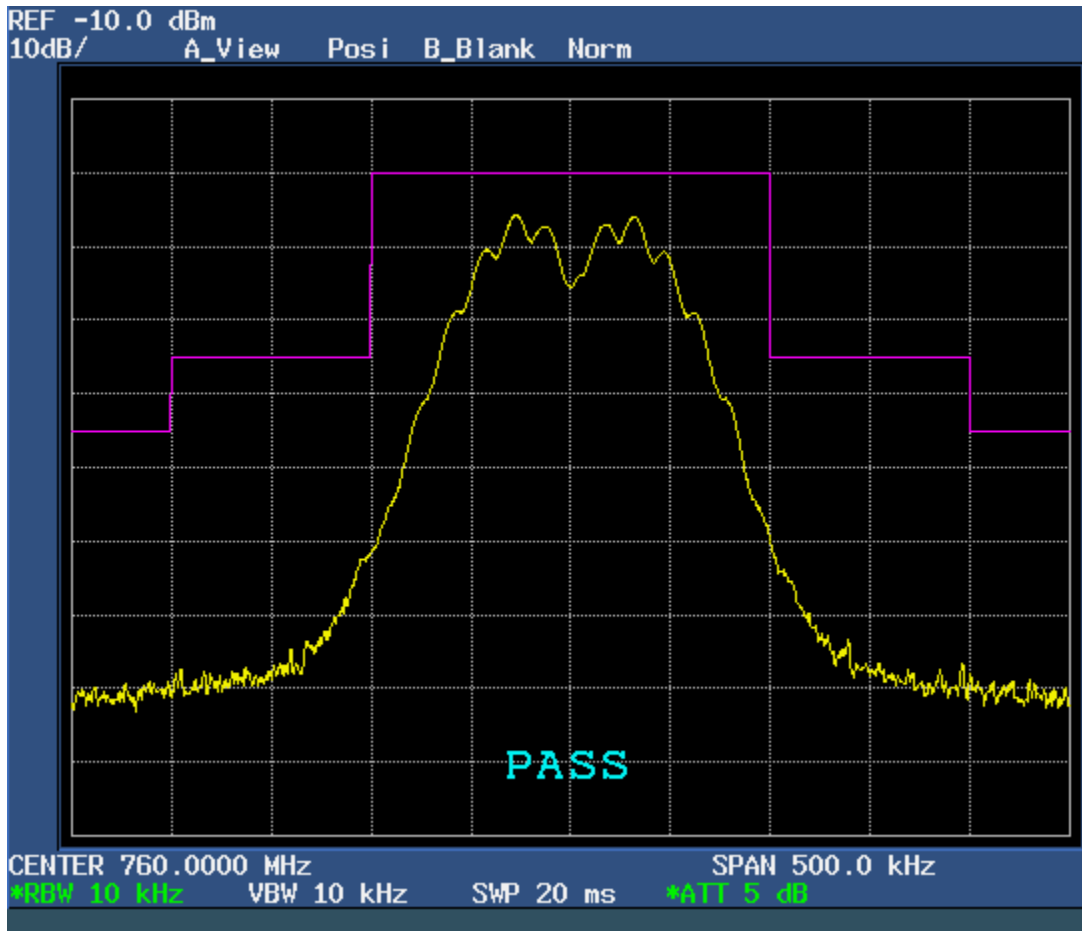
Audio test level: 100.6 dB μ V / 7.5 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band IV - 760 MHz



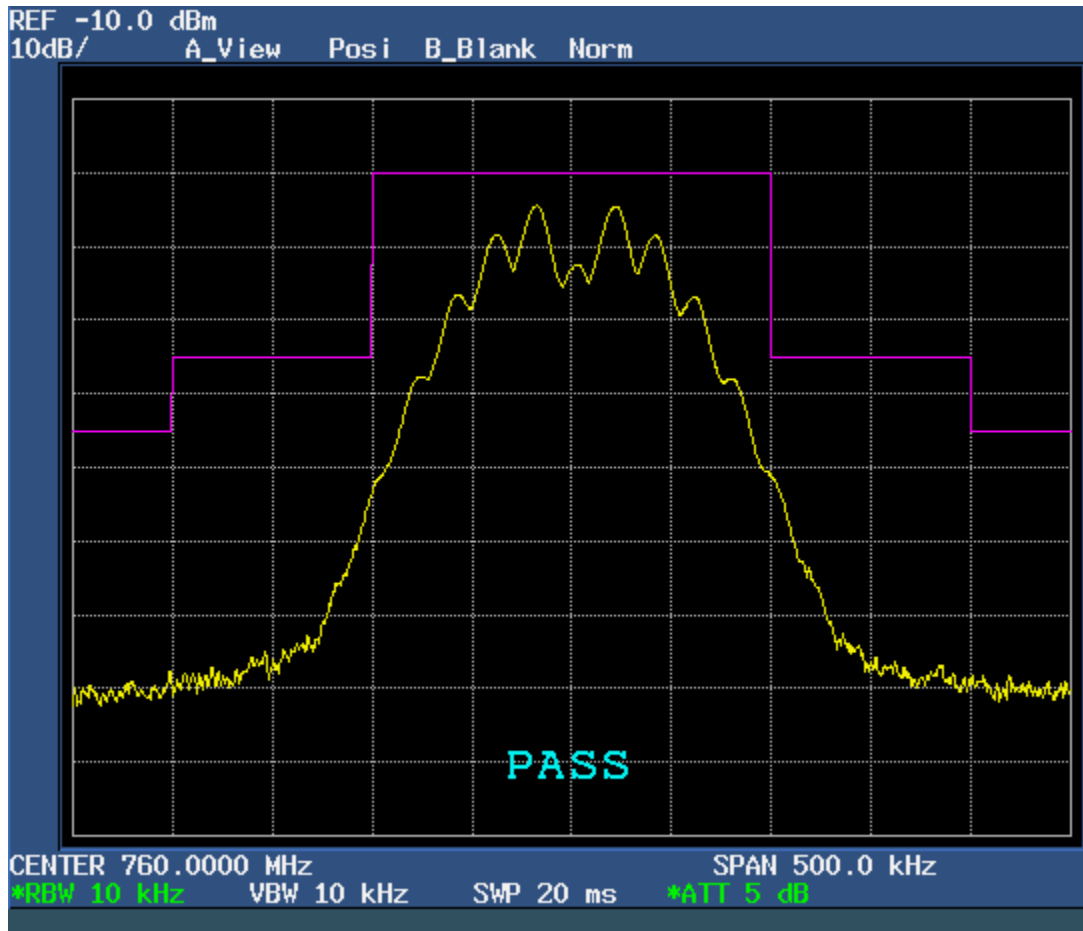
Audio test level: 100.6 dBμV / 15 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band IV - 760 MHz



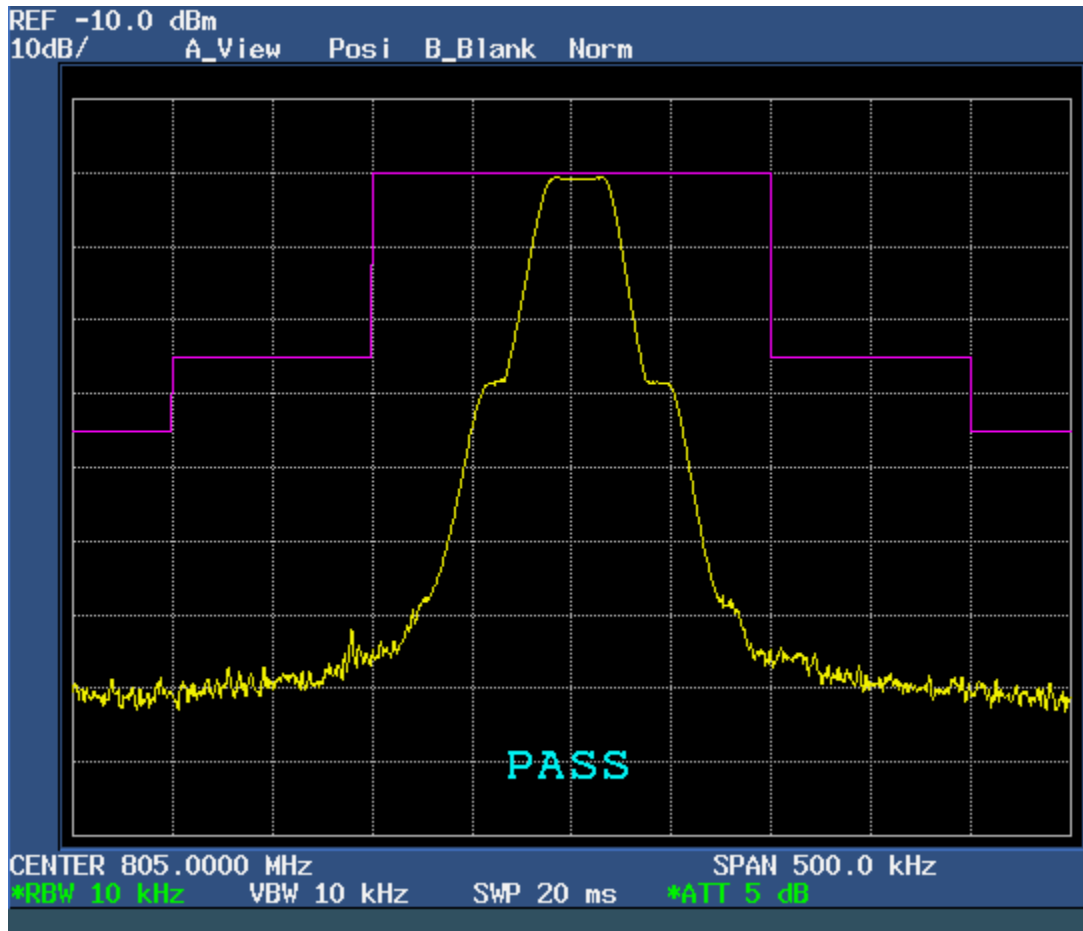
Audio test level: 100.6 dB μ V / 20 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band V - 805 MHz



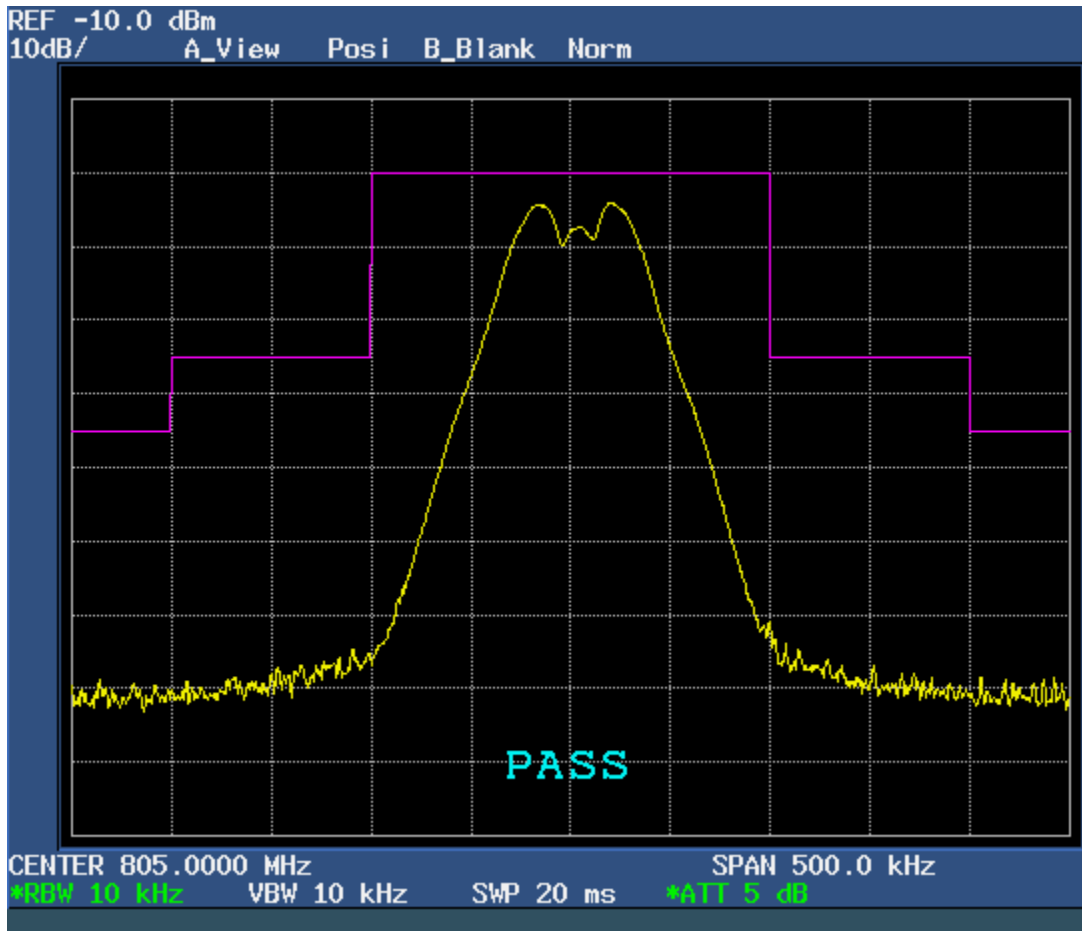
Audio test level: 91.5 dBμV / 1 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band V - 805 MHz



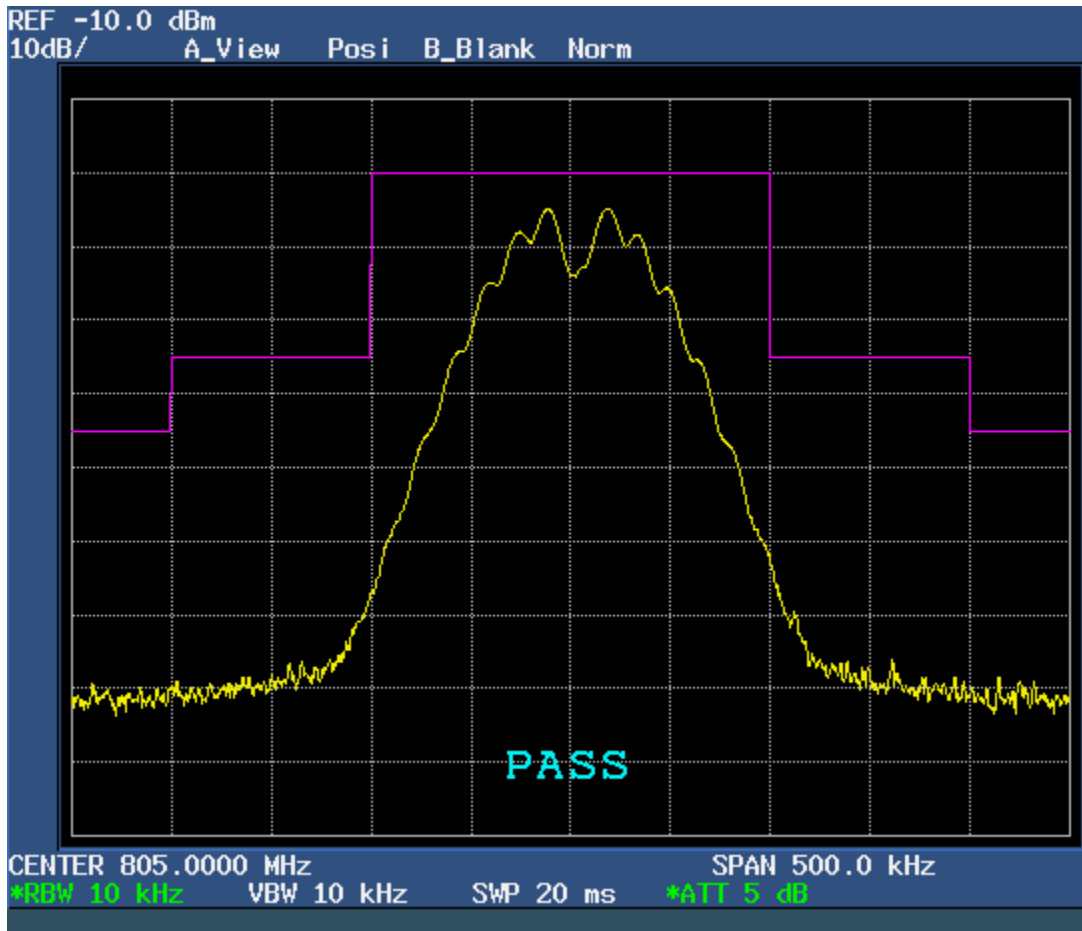
Audio test level: 91.5 dB μ V / 7.5 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band V - 805 MHz



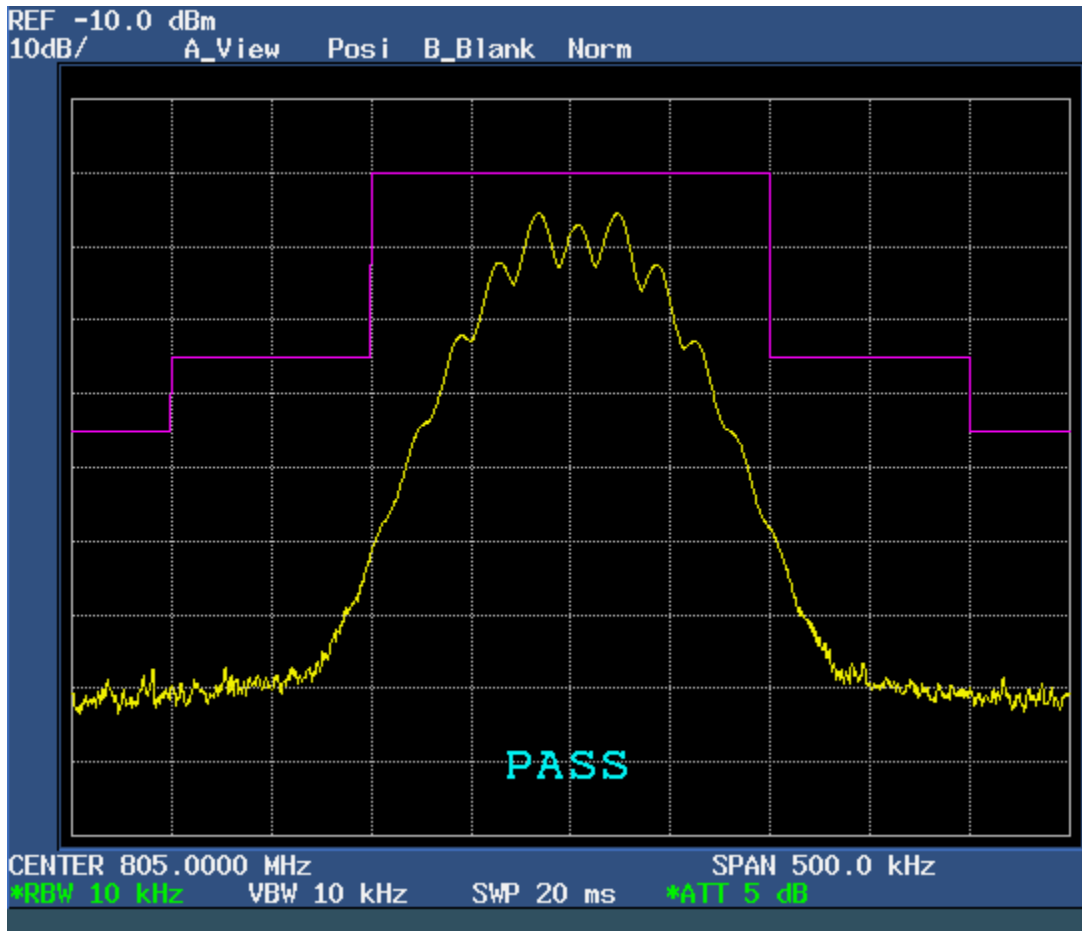
Audio test level: 91.5 dBμV / 15 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band V - 805 MHz



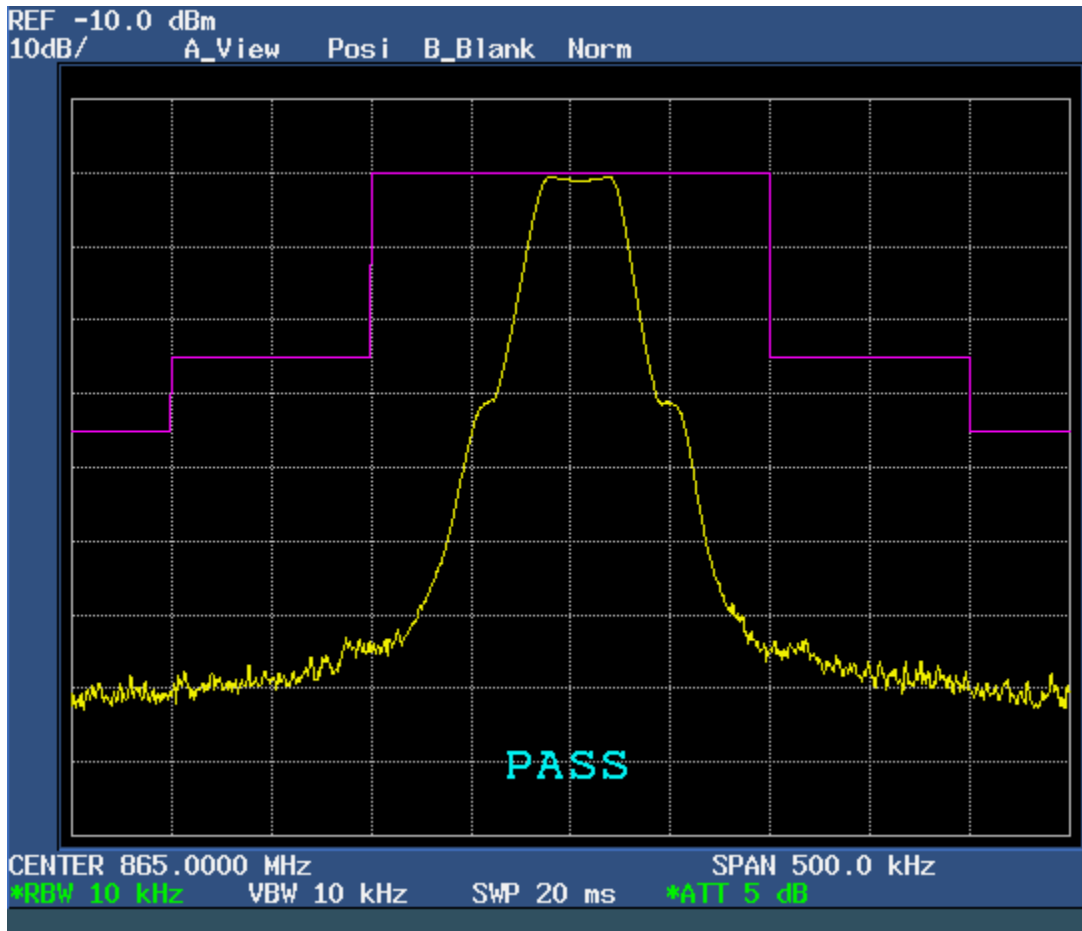
Audio test level: 91.5 dB μ V / 20 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band VI - 865 MHz



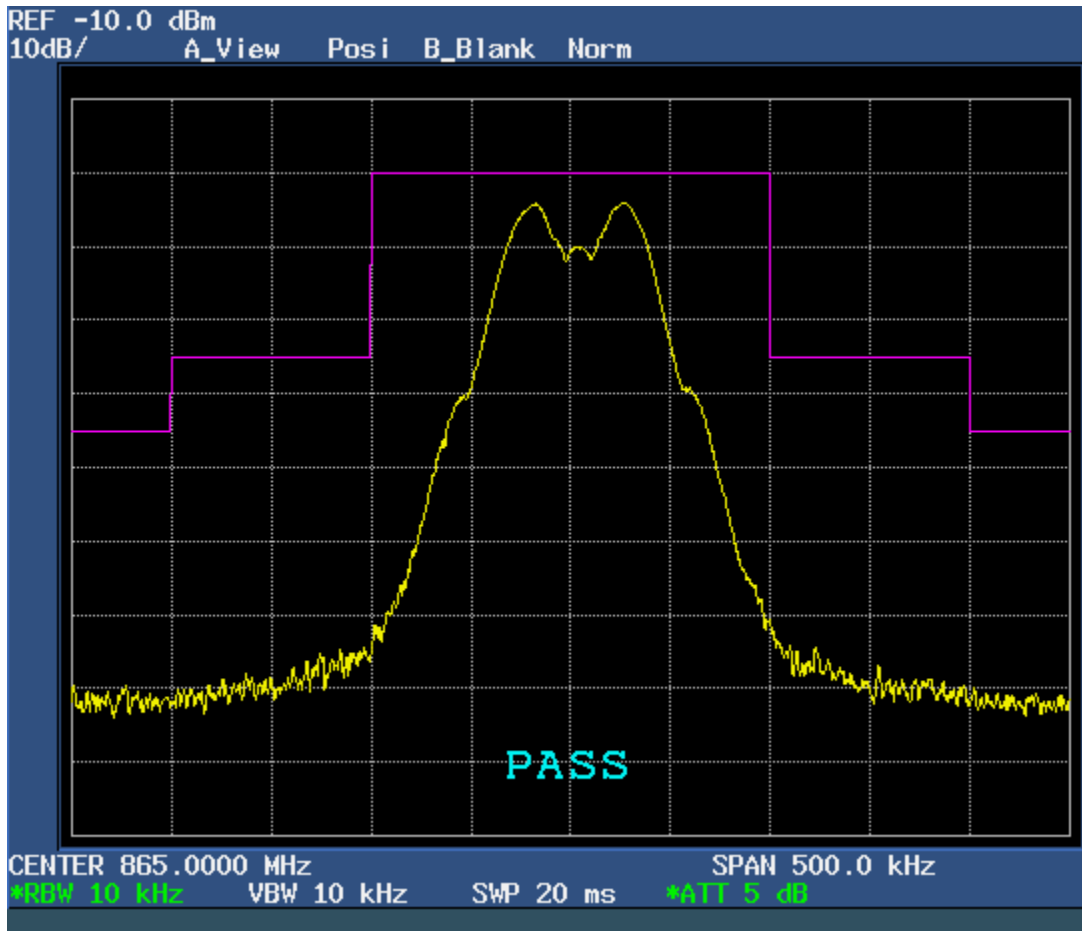
Audio test level: 101.5 dBμV / 1 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band VI - 865 MHz



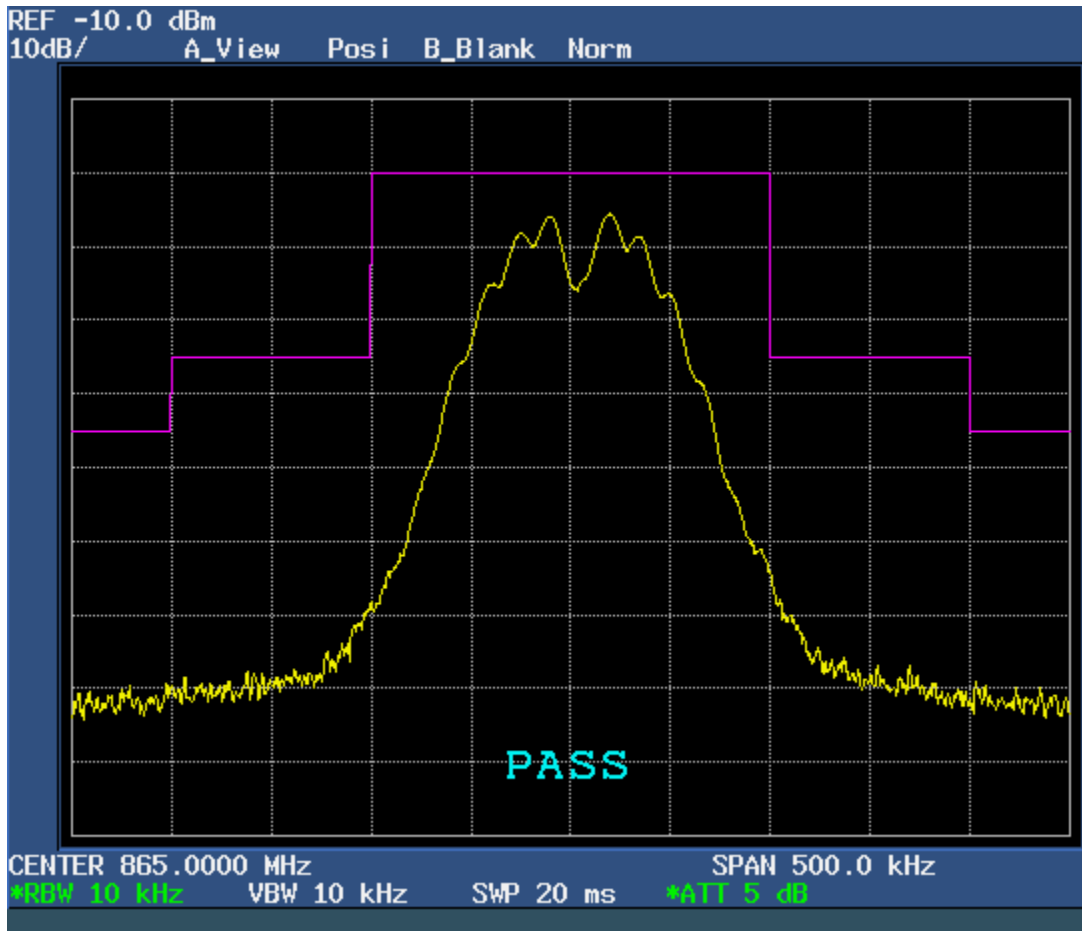
Audio test level: 101.5 dBμV / 7.5 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band VI - 865 MHz



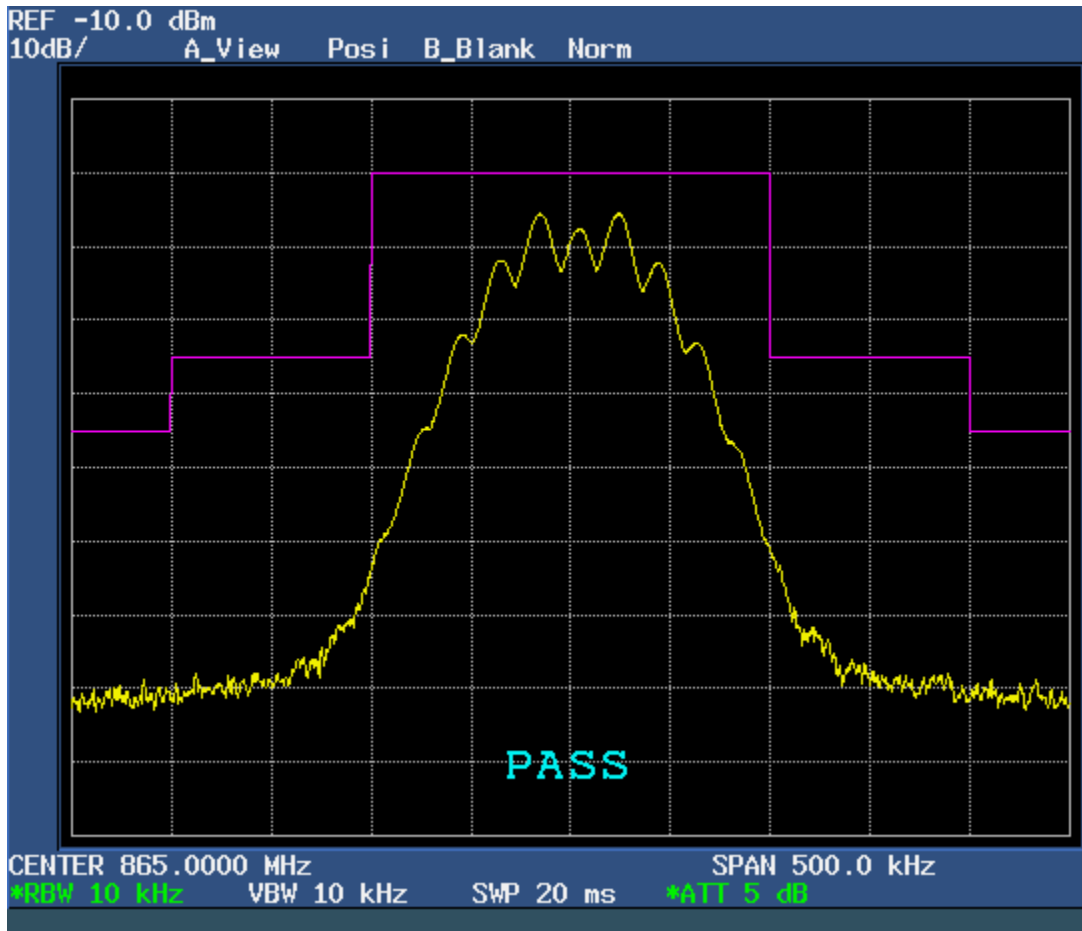
Audio test level: 101.5 dB μ V / 15 kHz
DC supply voltage: 3.0 V

FCC ID: E9MHT4000

OCCUPIED BANDWIDTH

HT4000

Band VI - 865 MHz

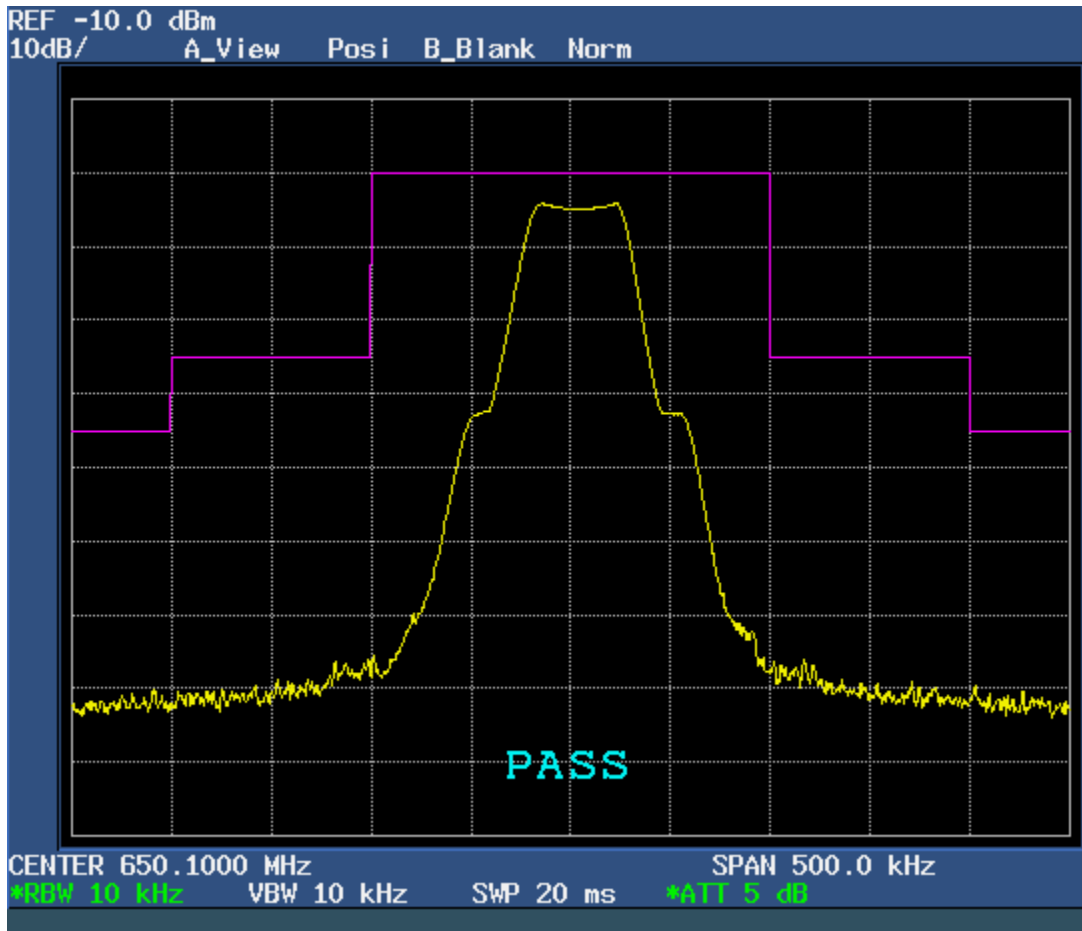


Audio test level: 101.5 dBμV / 20 kHz
DC supply voltage: 3.0 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

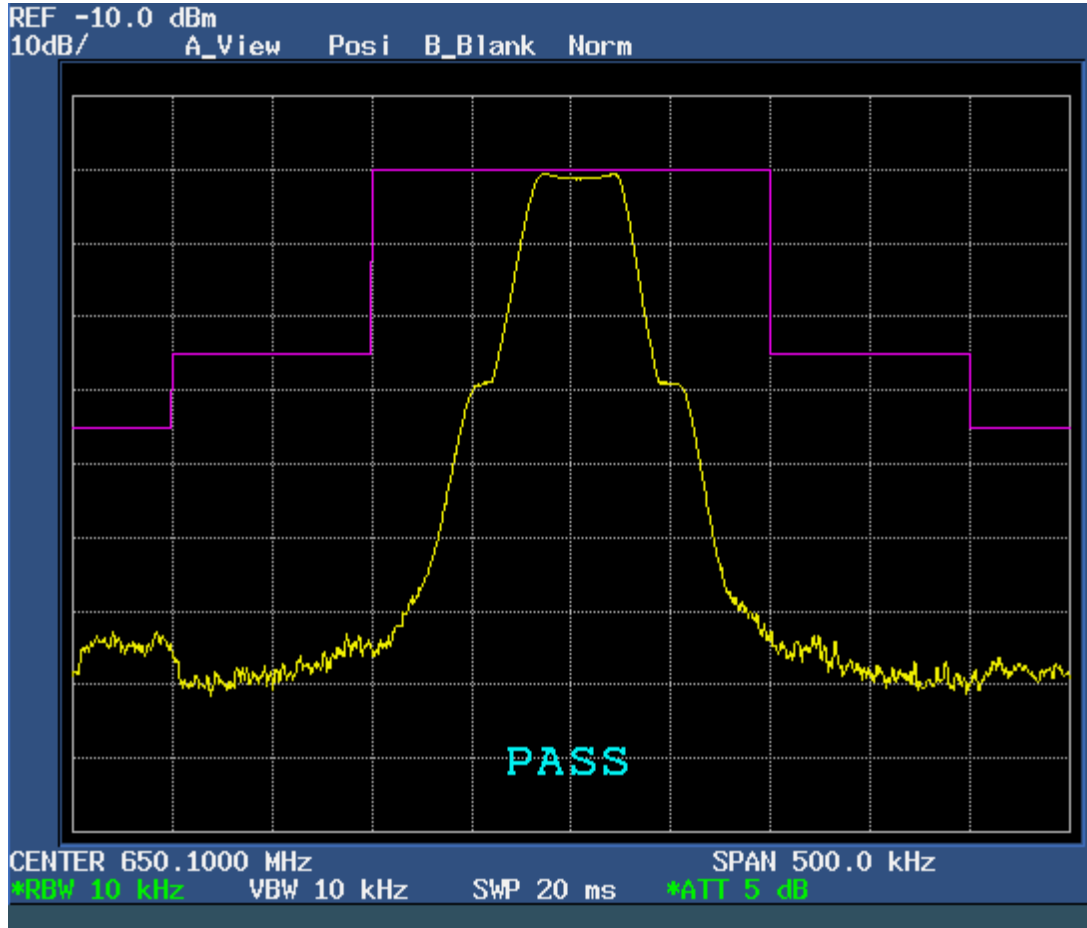


Audio test level: 101.0 dB μ V / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

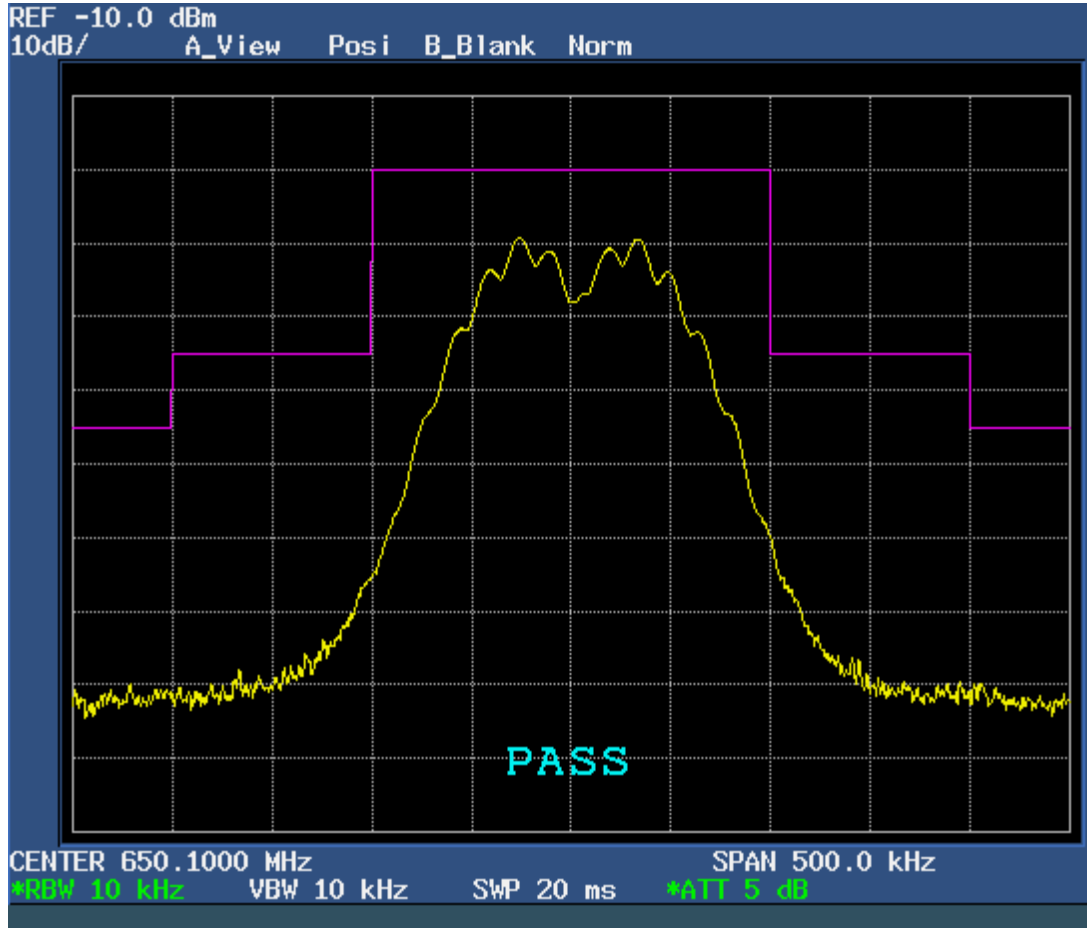


Audio test level: 101.0 dB μ V / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

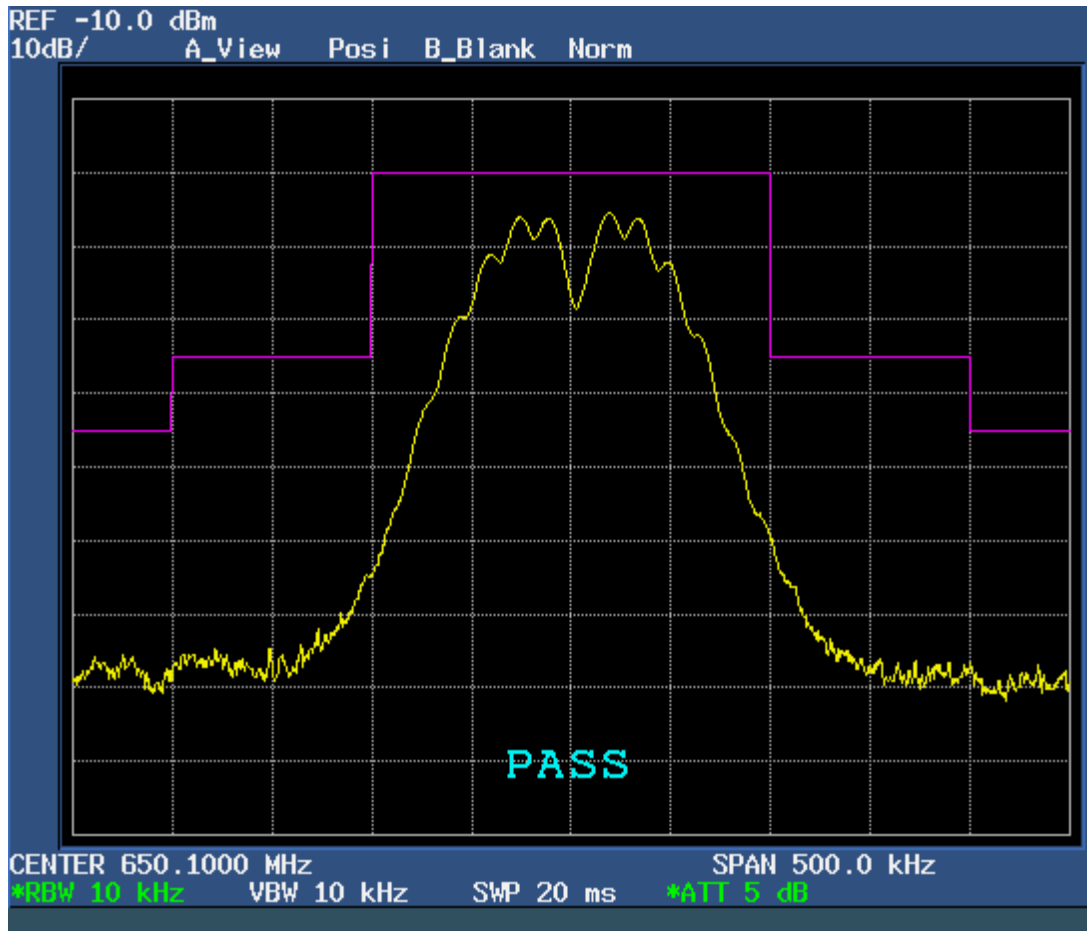


Audio test level: 101.0 dB μ V / 15 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

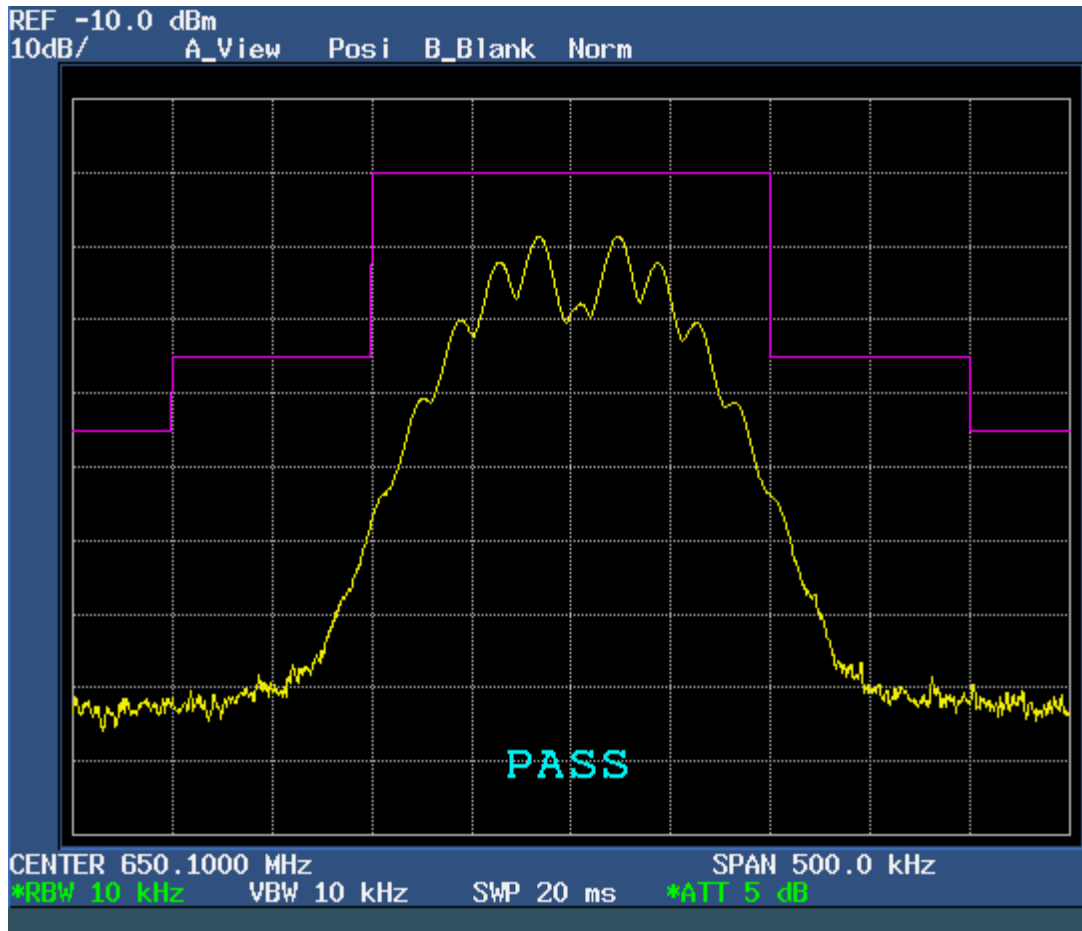


Audio test level: 101.5 dB μ V / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

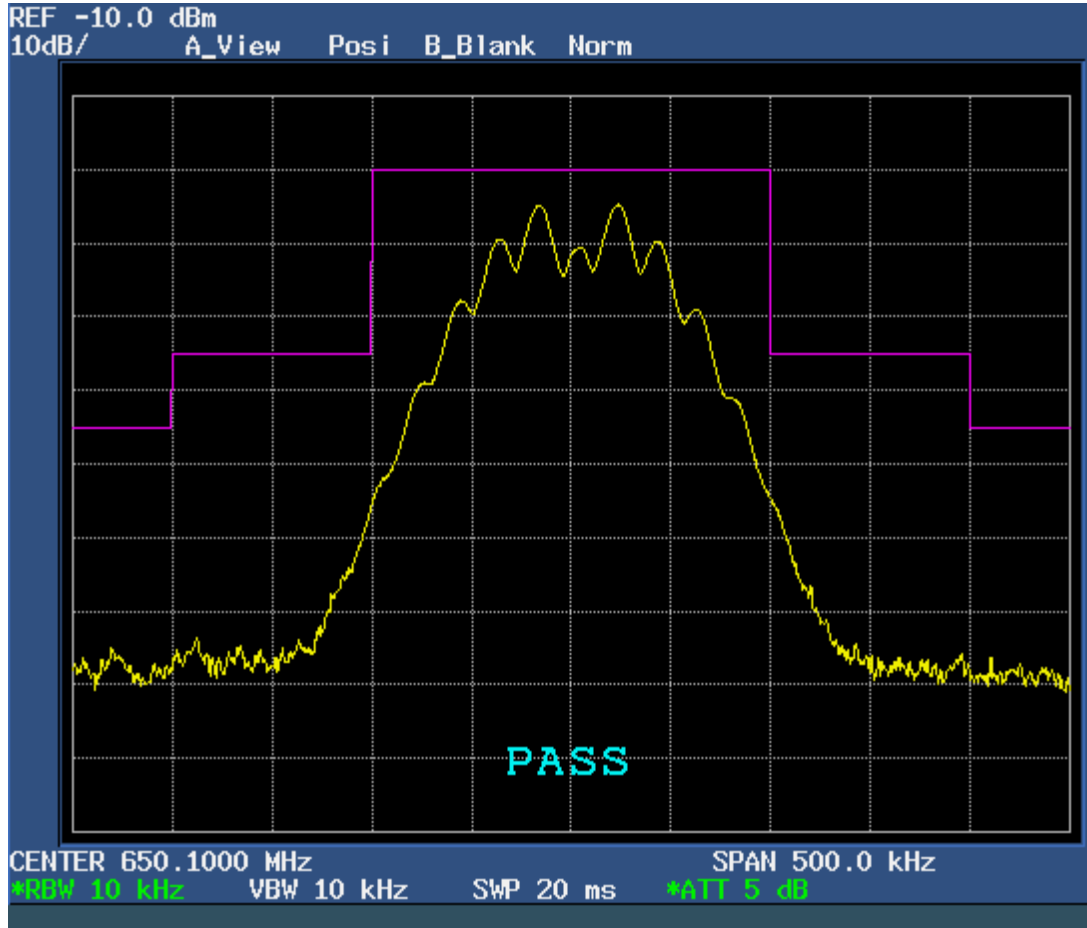


Audio test level: 101.5 dB μ V / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

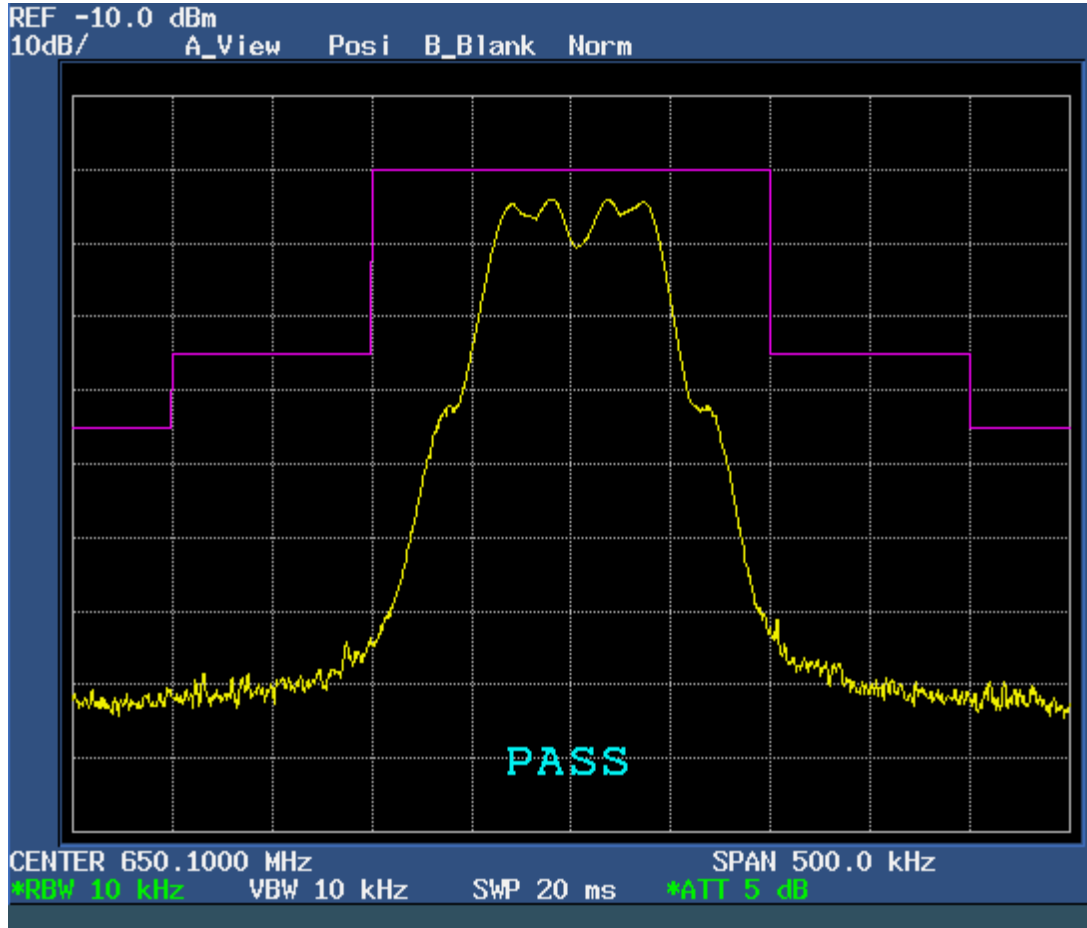


Audio test level: 101.0 dB μ V / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

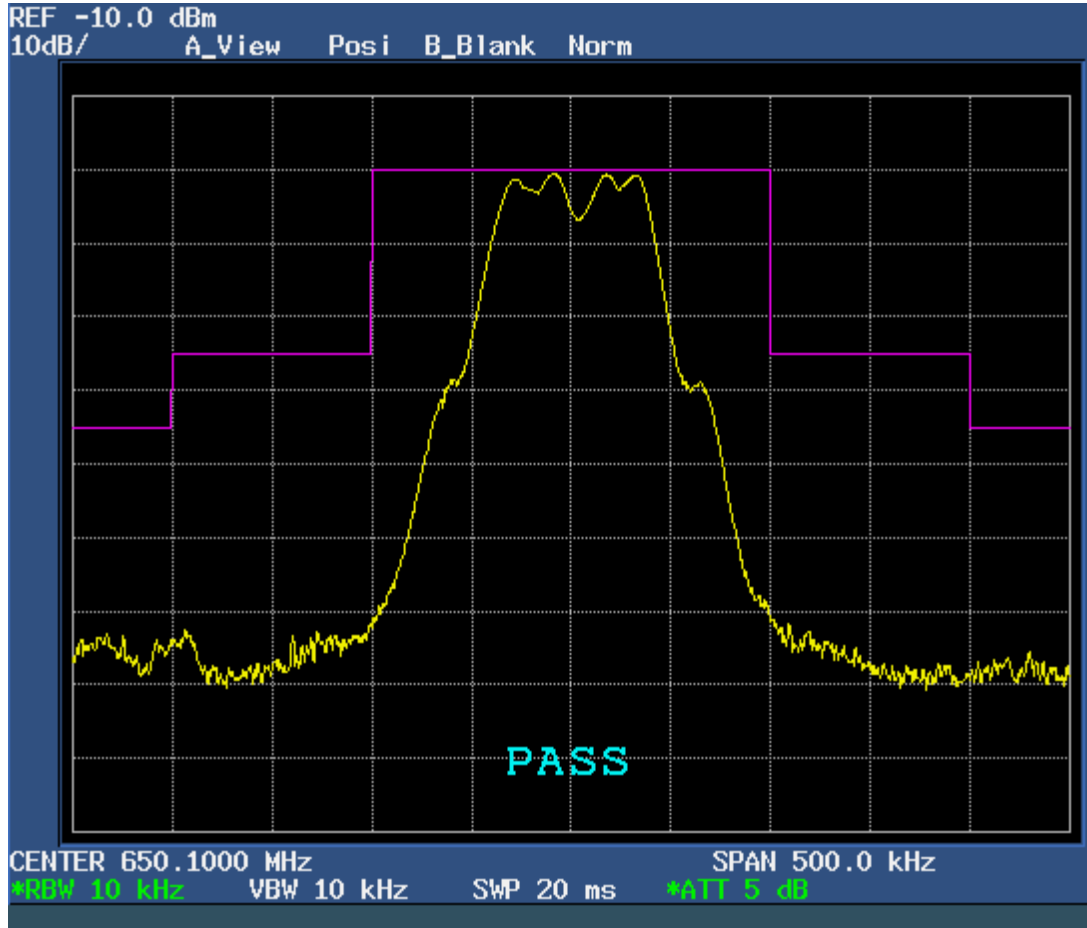


Audio test level: 350 mV / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

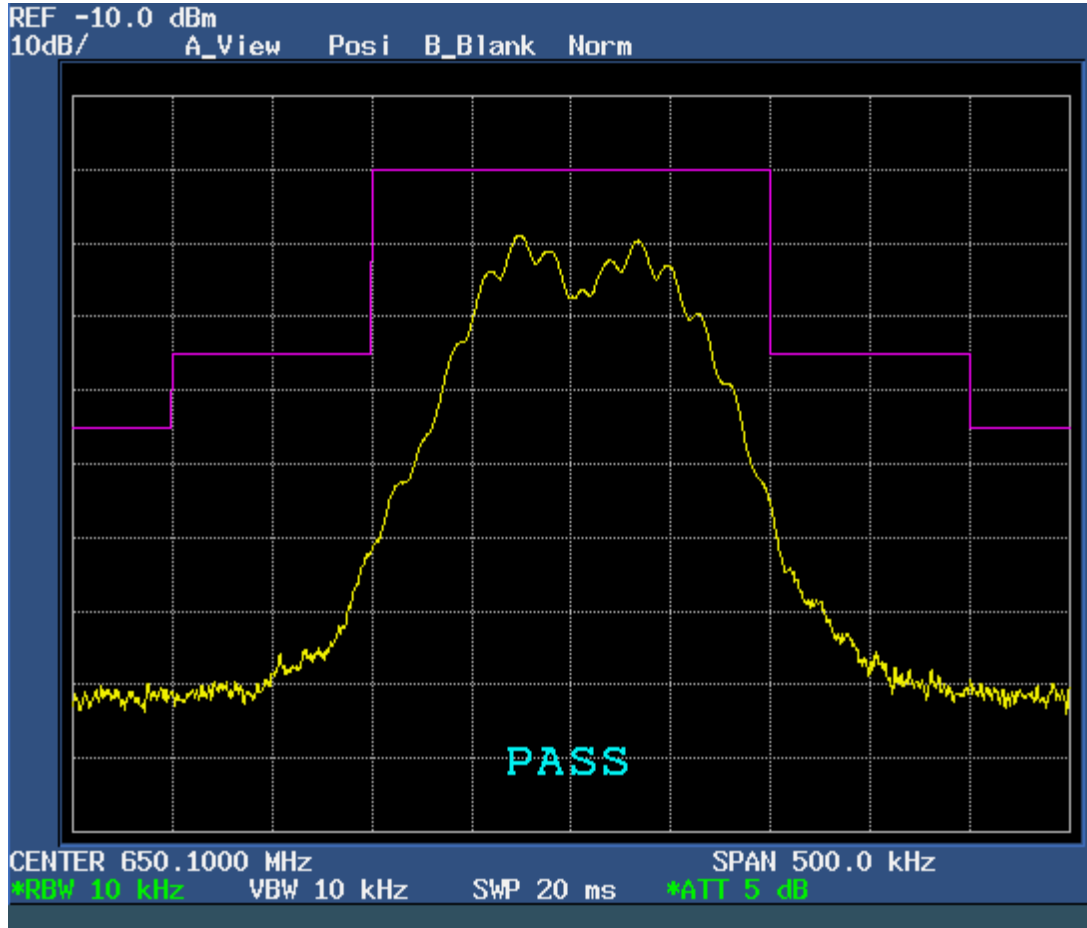


Audio test level: 350 mV / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

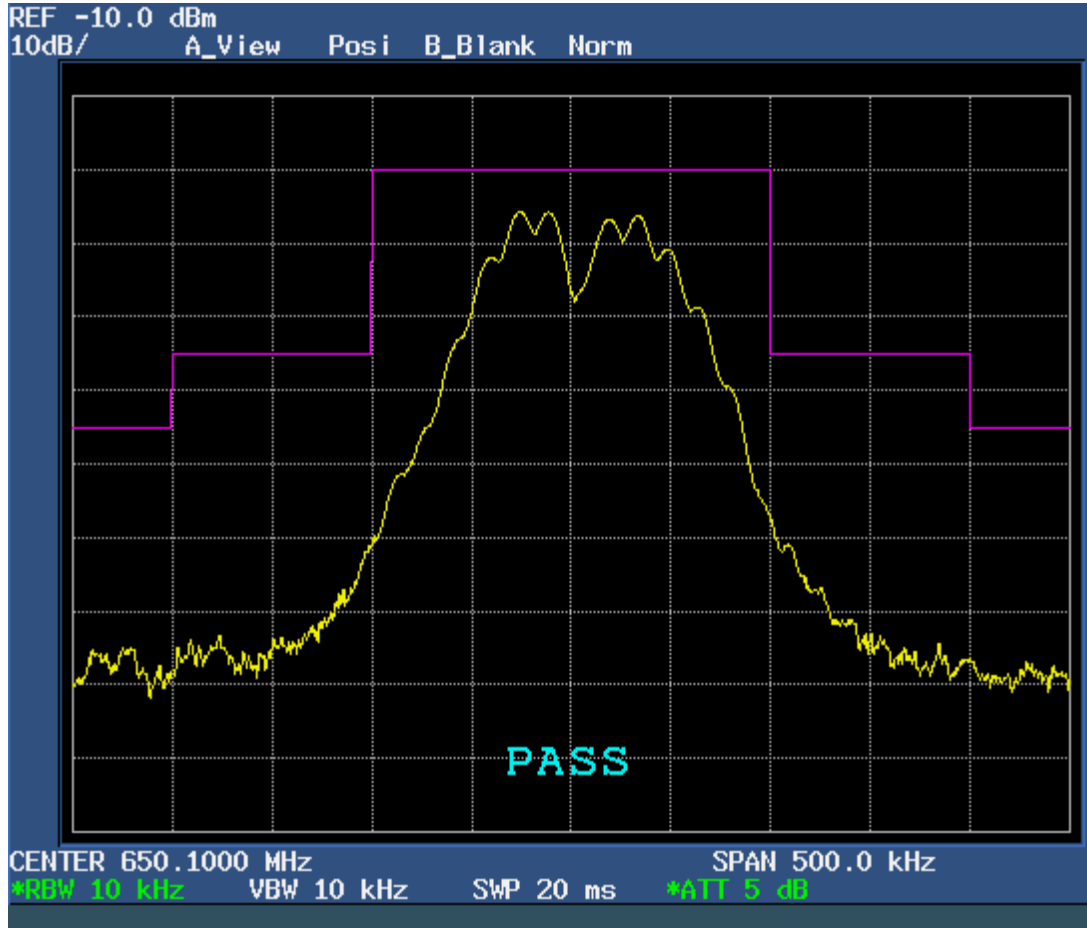


Audio test level: 350 mV / 2.1 V
DC supply voltage: 15 kHz

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

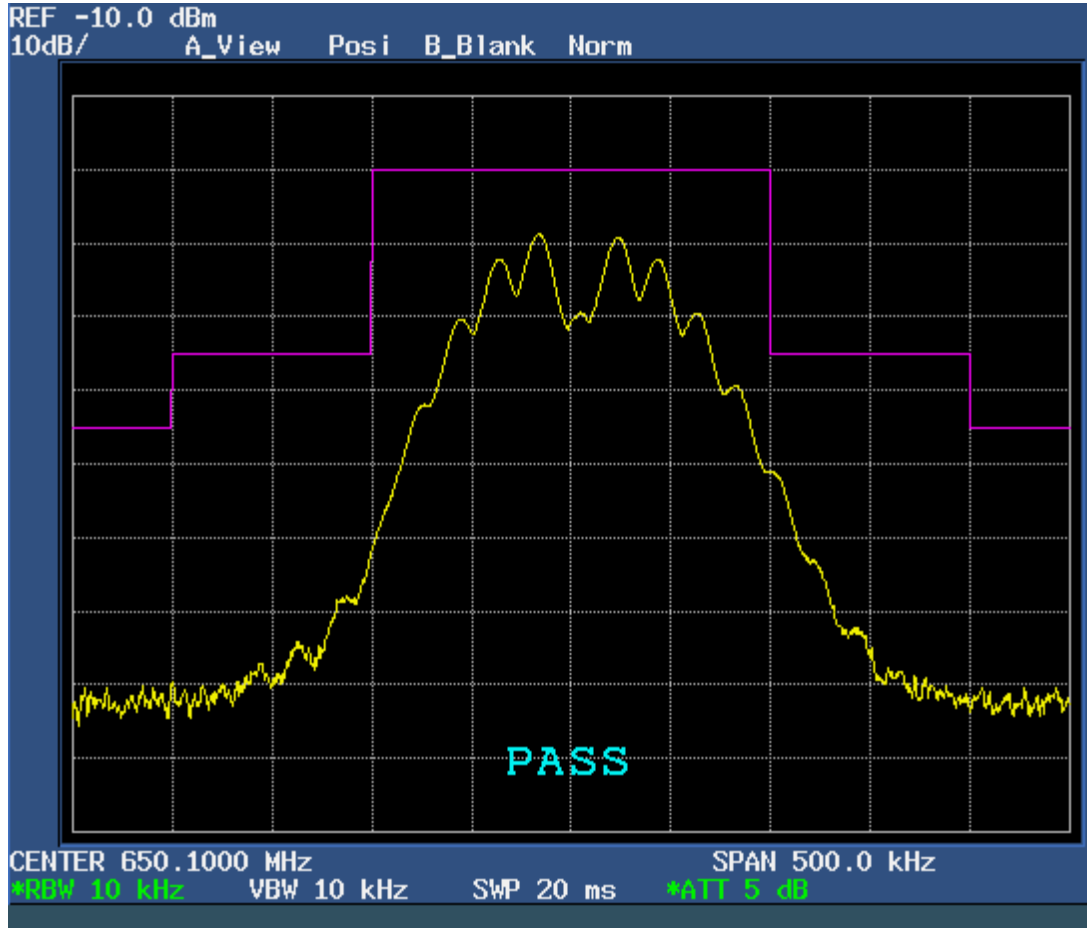


Audio test level: 350 mV / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

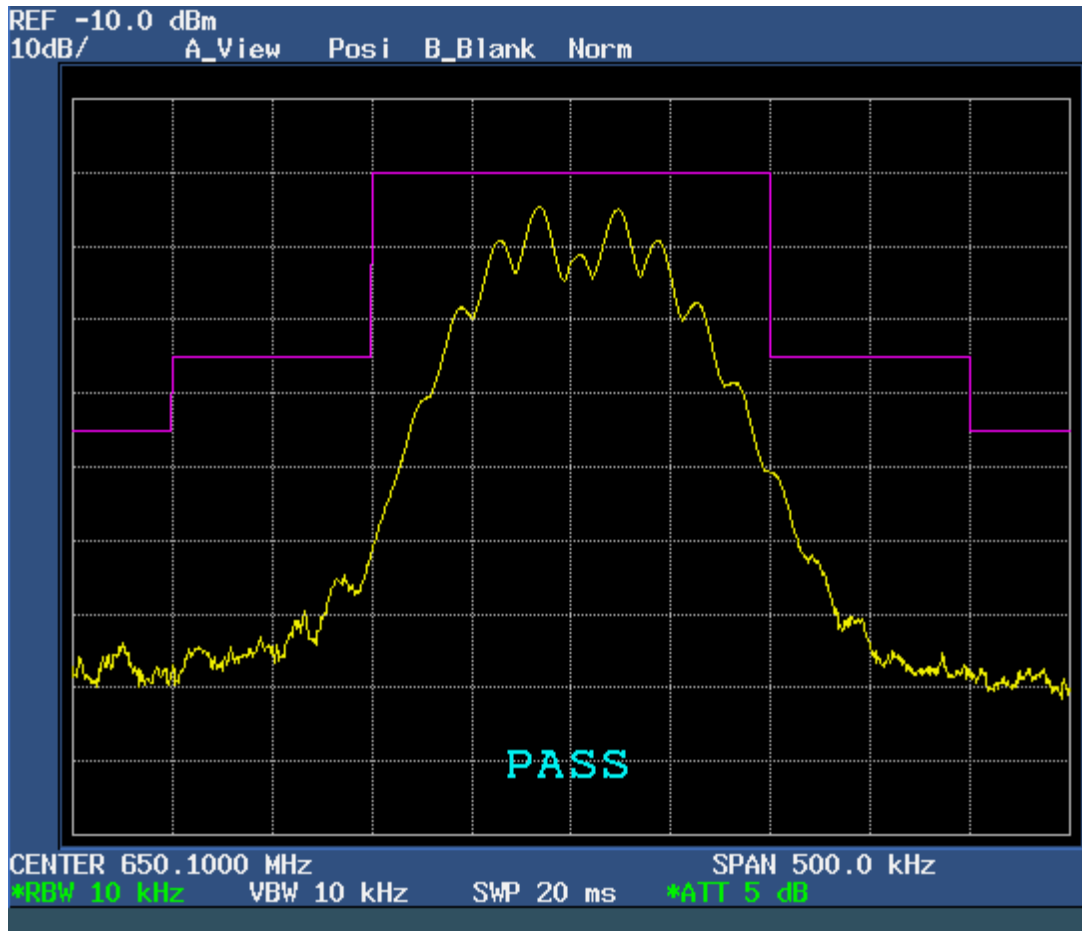


Audio test level: 350 mV / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band I - 650.1 MHz

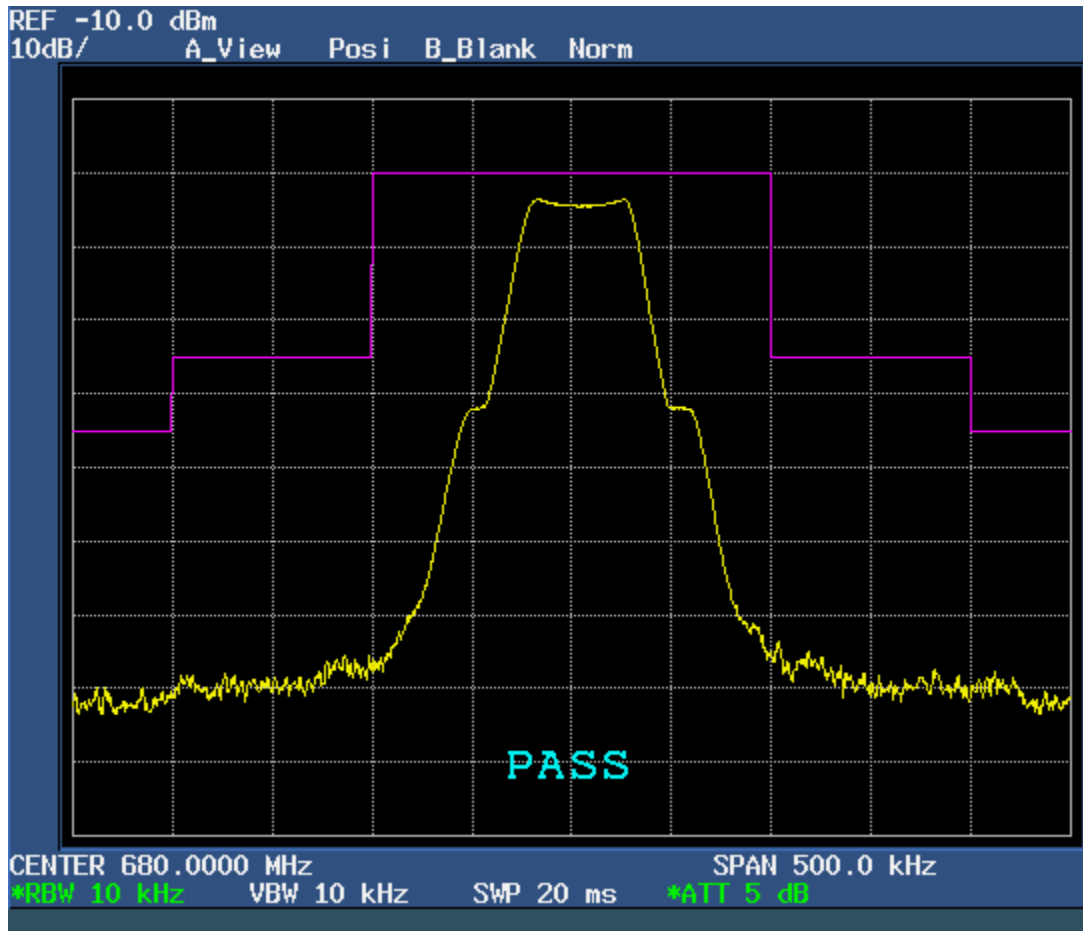


Audio test level: 350 mV / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

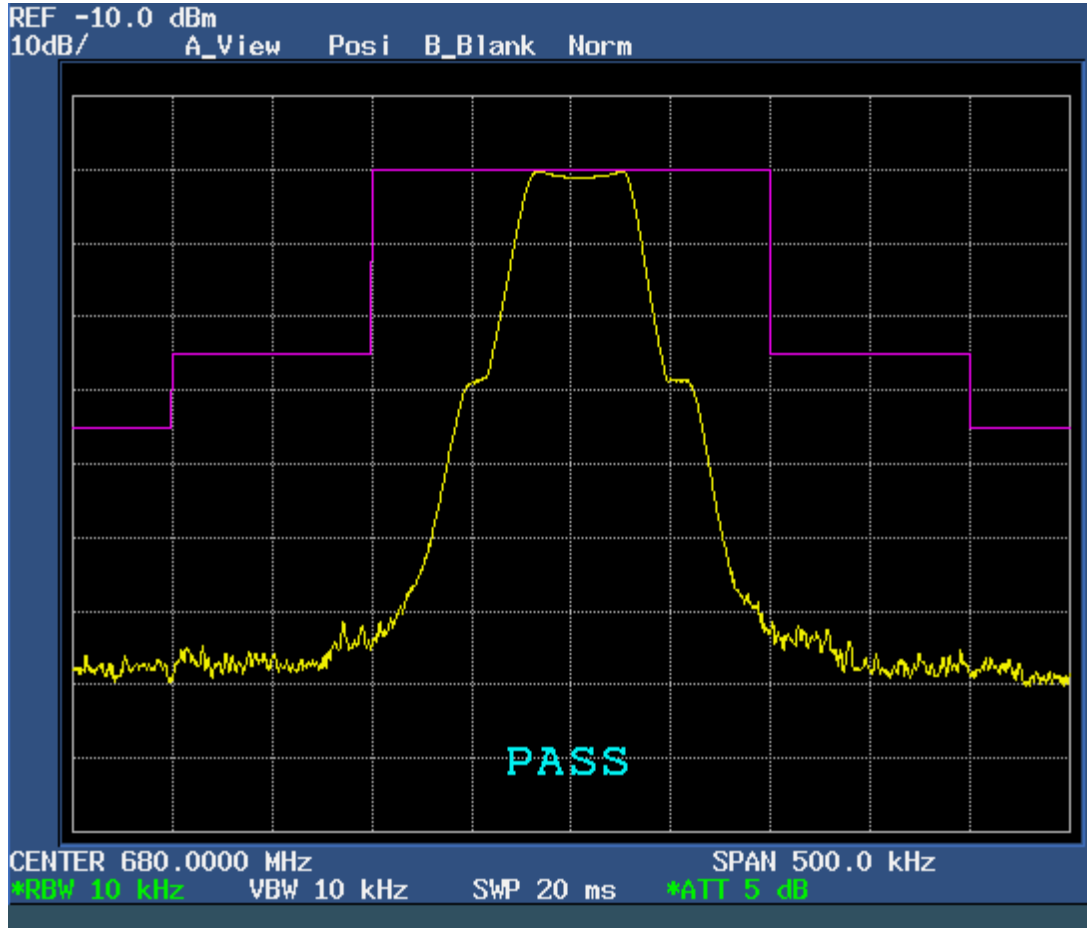


Audio test level: 102.0 dB μ V / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

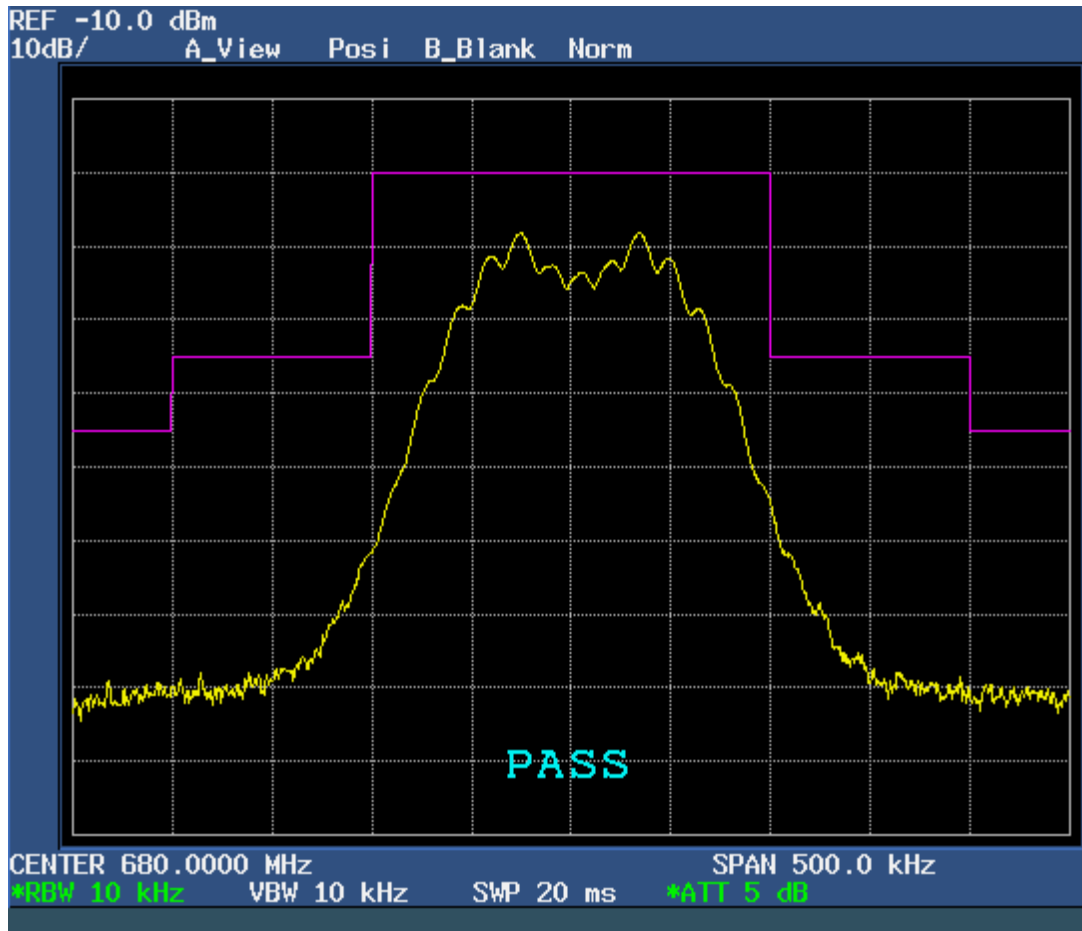


Audio test level: 102.0 dBμV / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

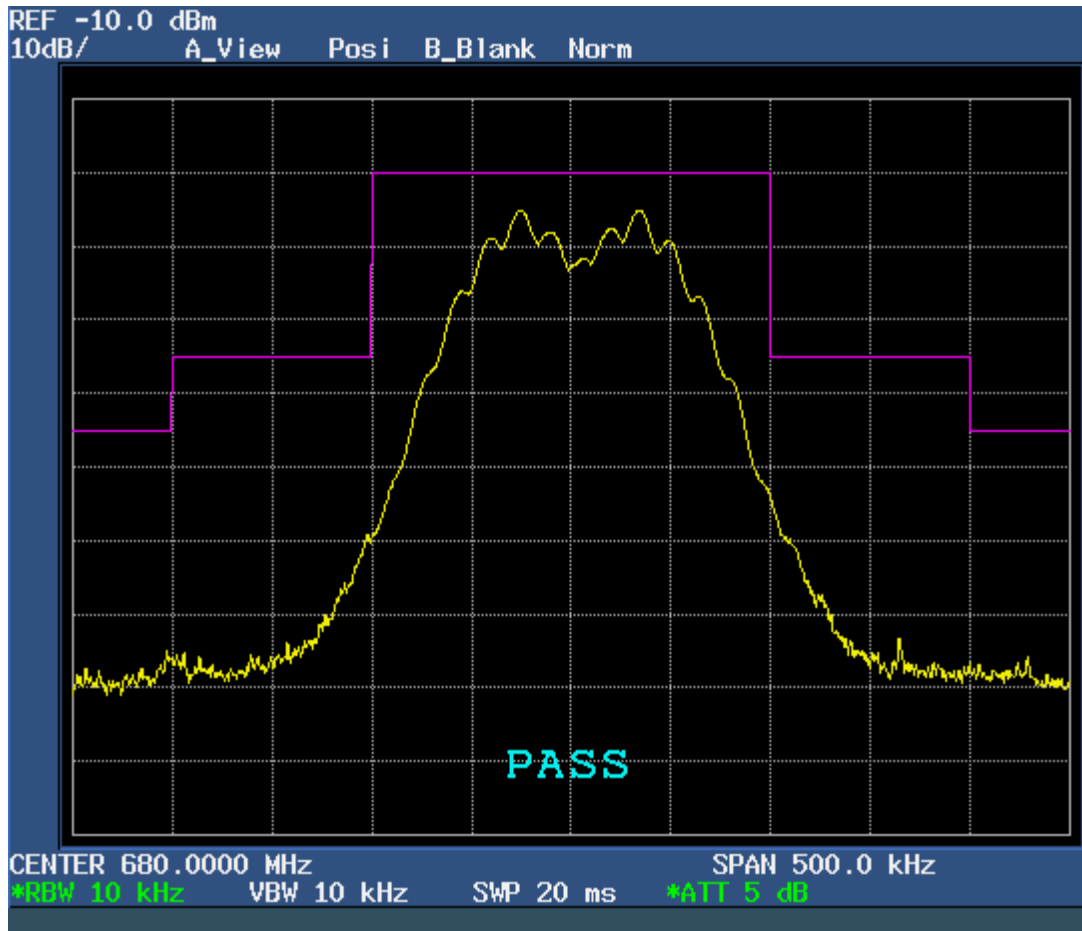


Audio test level: 102.0 dB μ V / 15 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

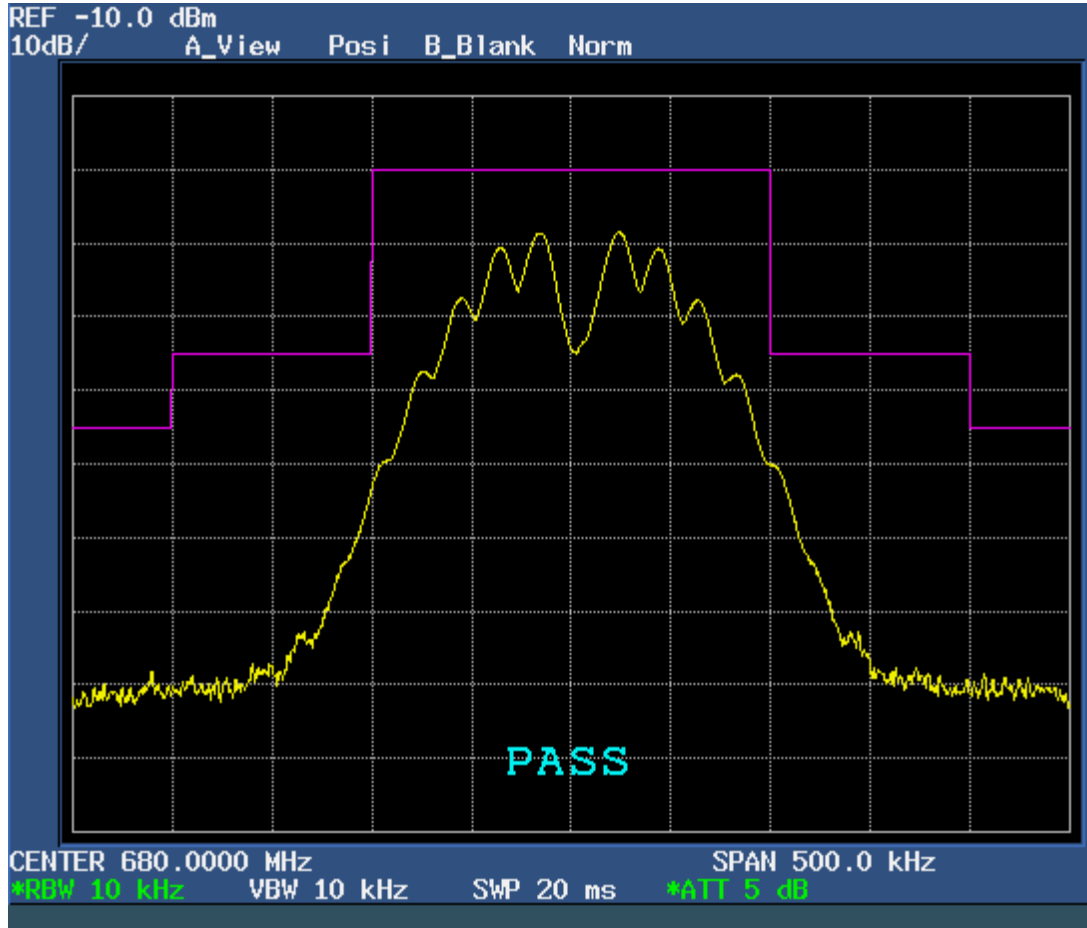


Audio test level: 102.0 dB μ V / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

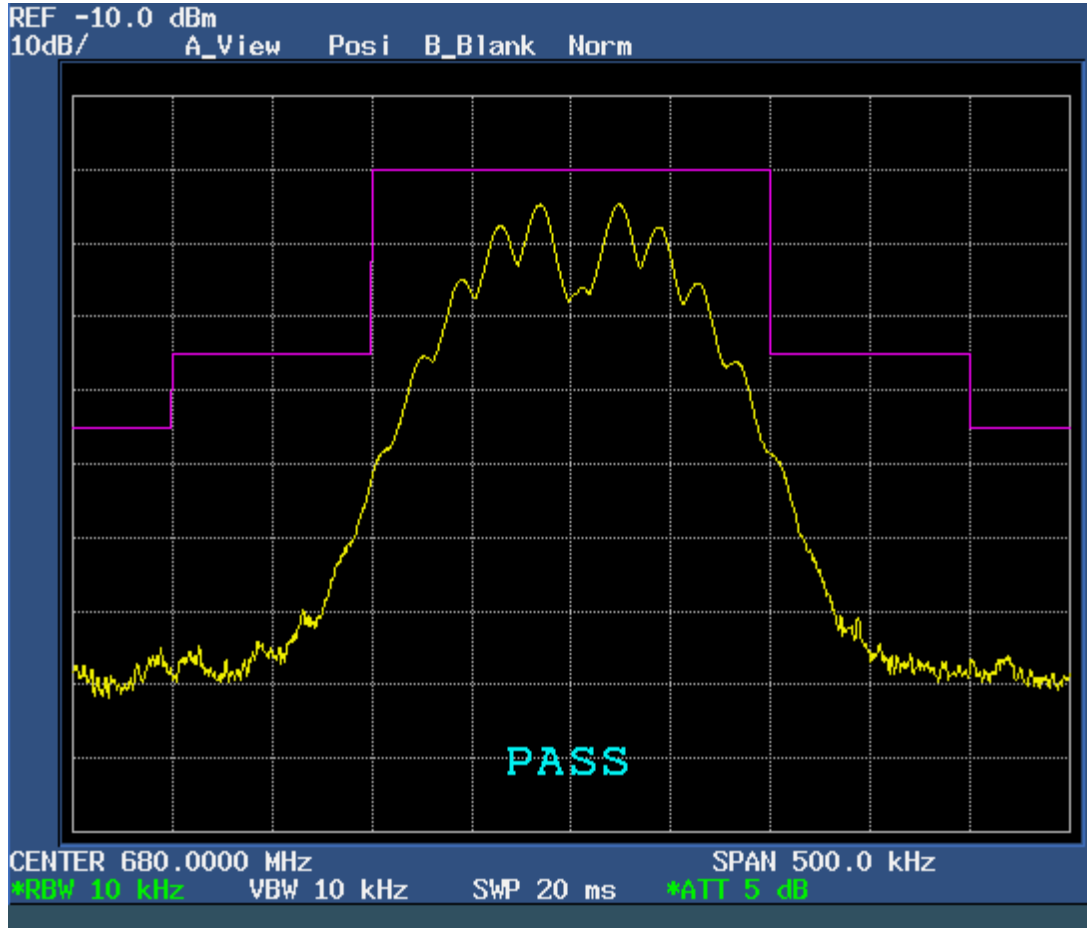


Audio test level: 102.0 dB μ V / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

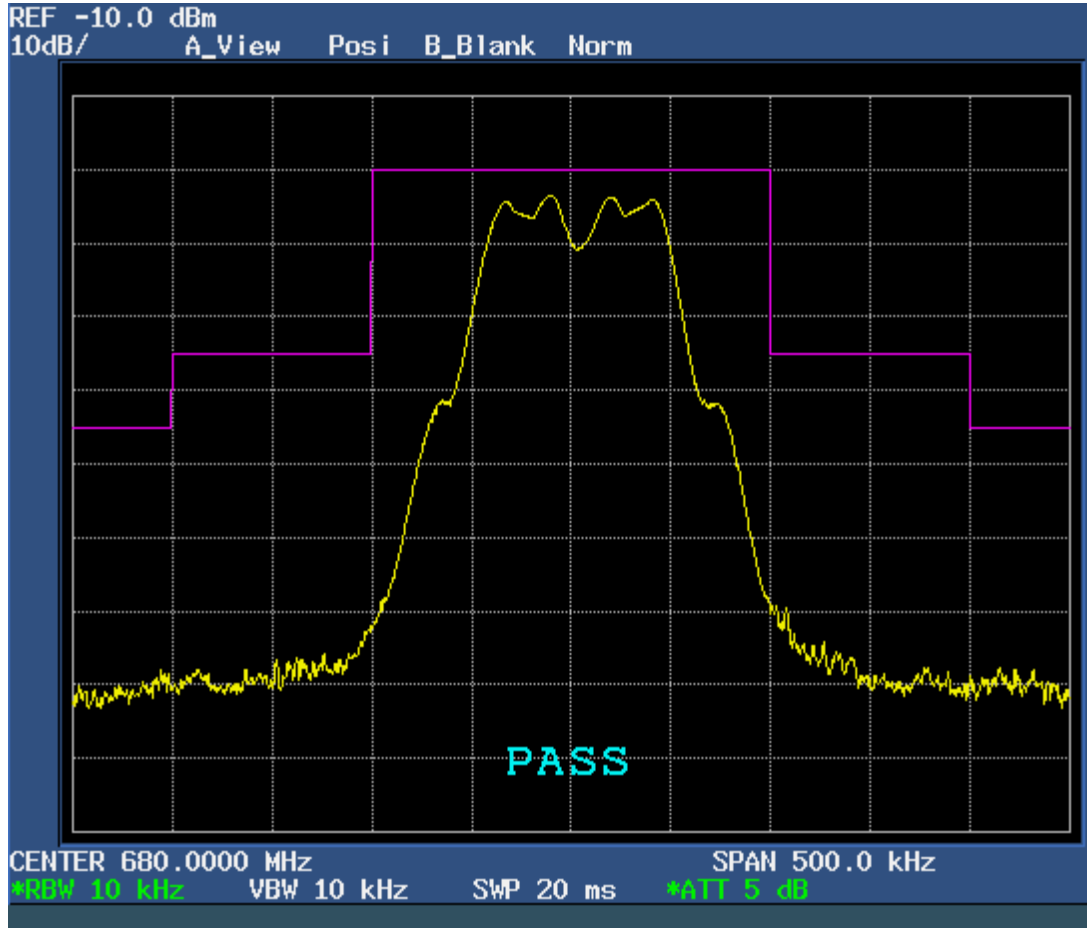


Audio test level: 102.0 dB μ V / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

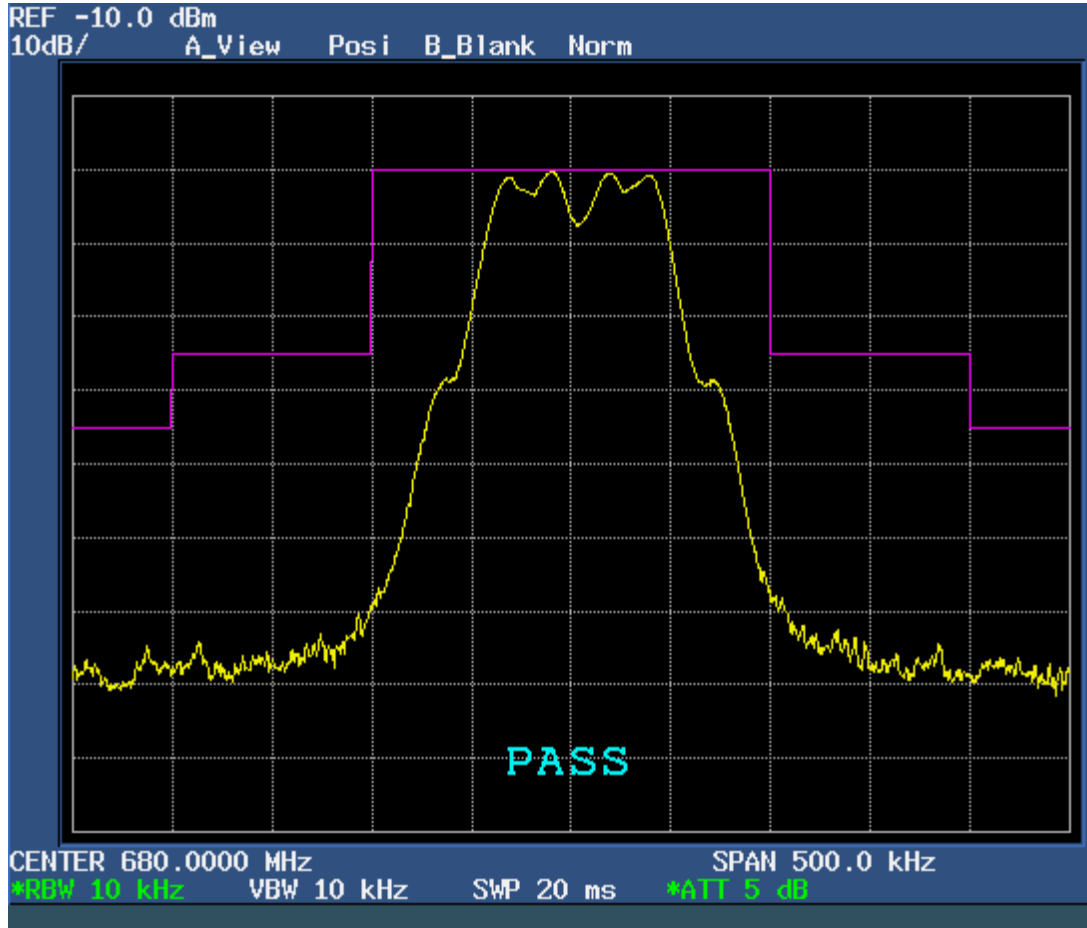


Audio test level: 350 mV / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

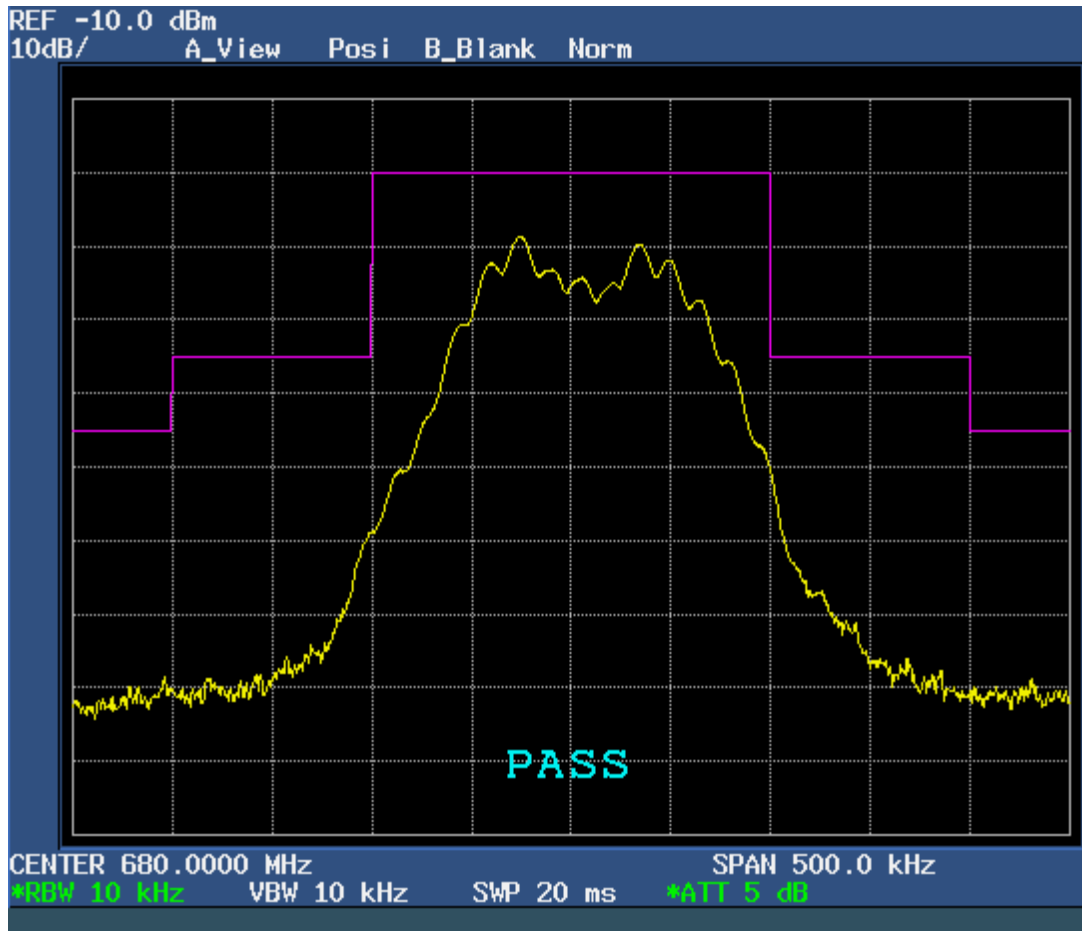


Audio test level: 350 mV / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

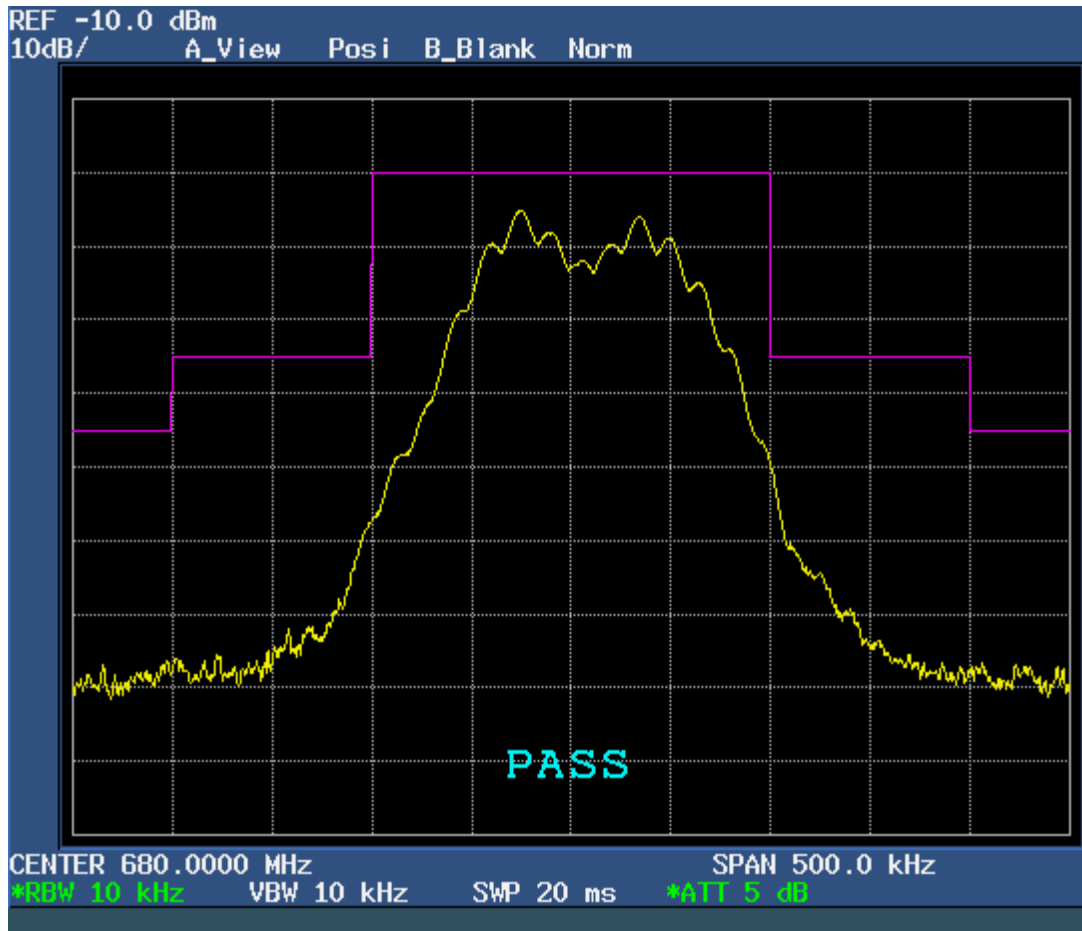


Audio test level: 350 mV / 2.1 V
DC supply voltage: 15 kHz

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

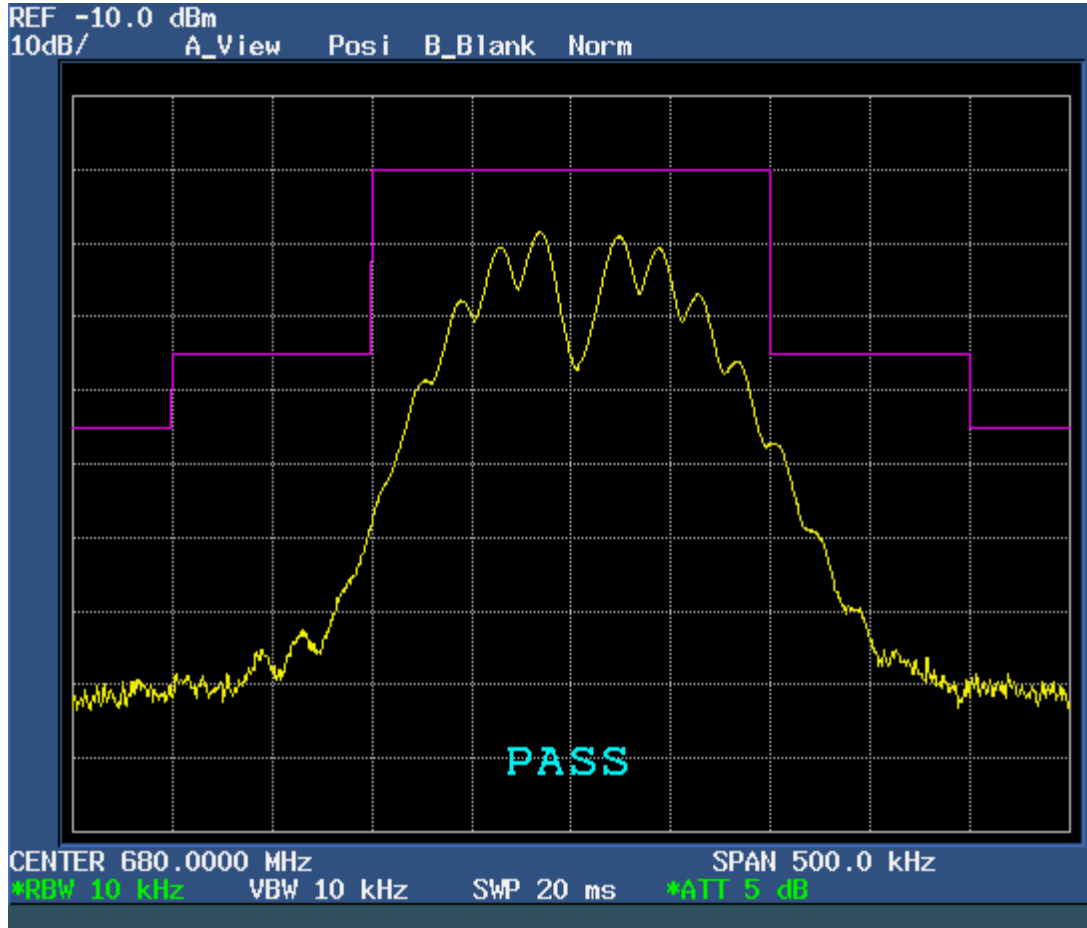


Audio test level: 350 mV / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

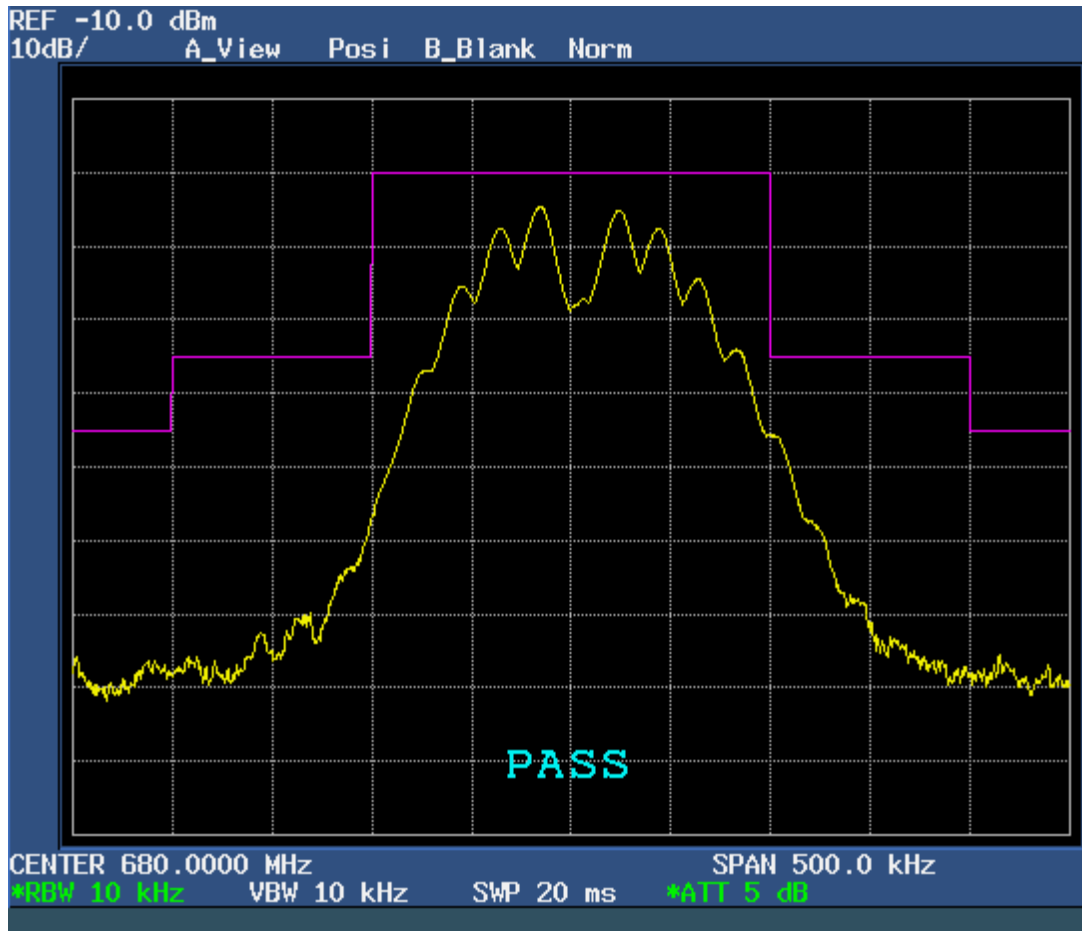


Audio test level: 350 mV / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band II - 680 MHz

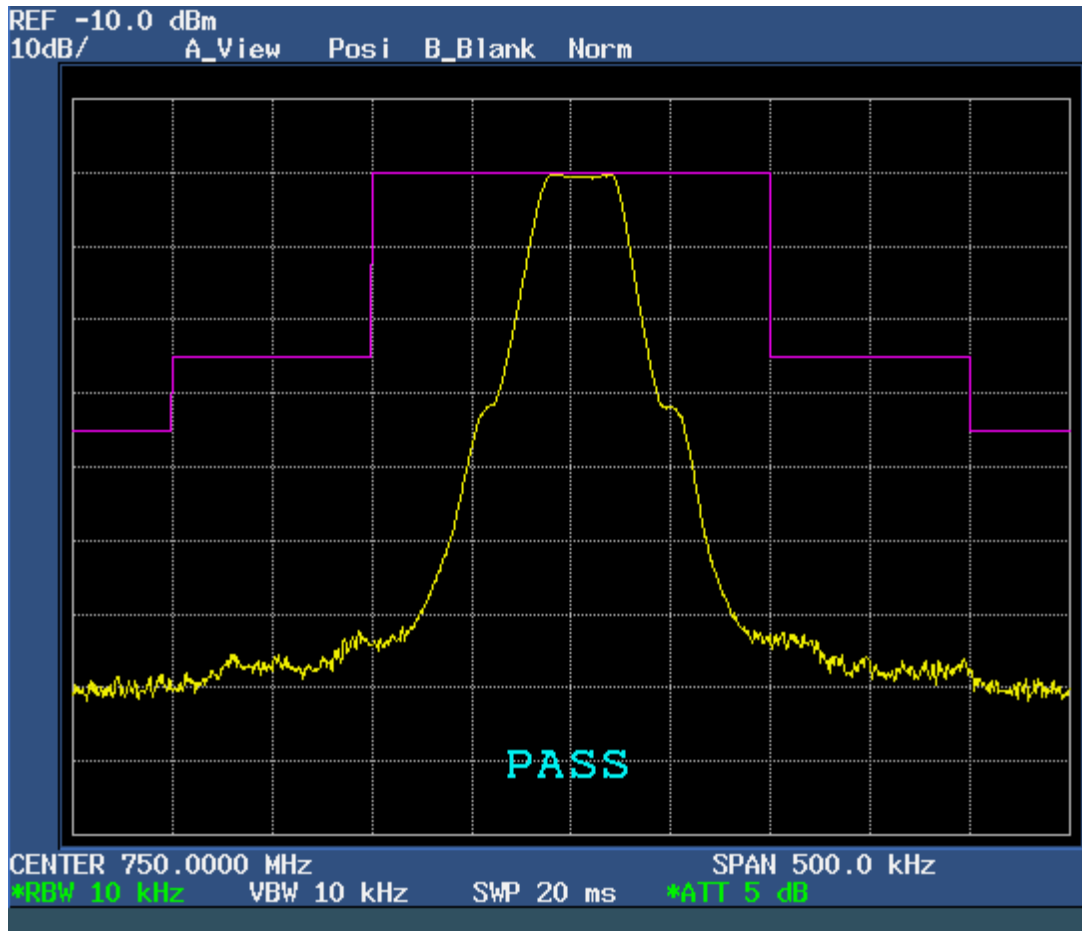


Audio test level: 350 mV / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

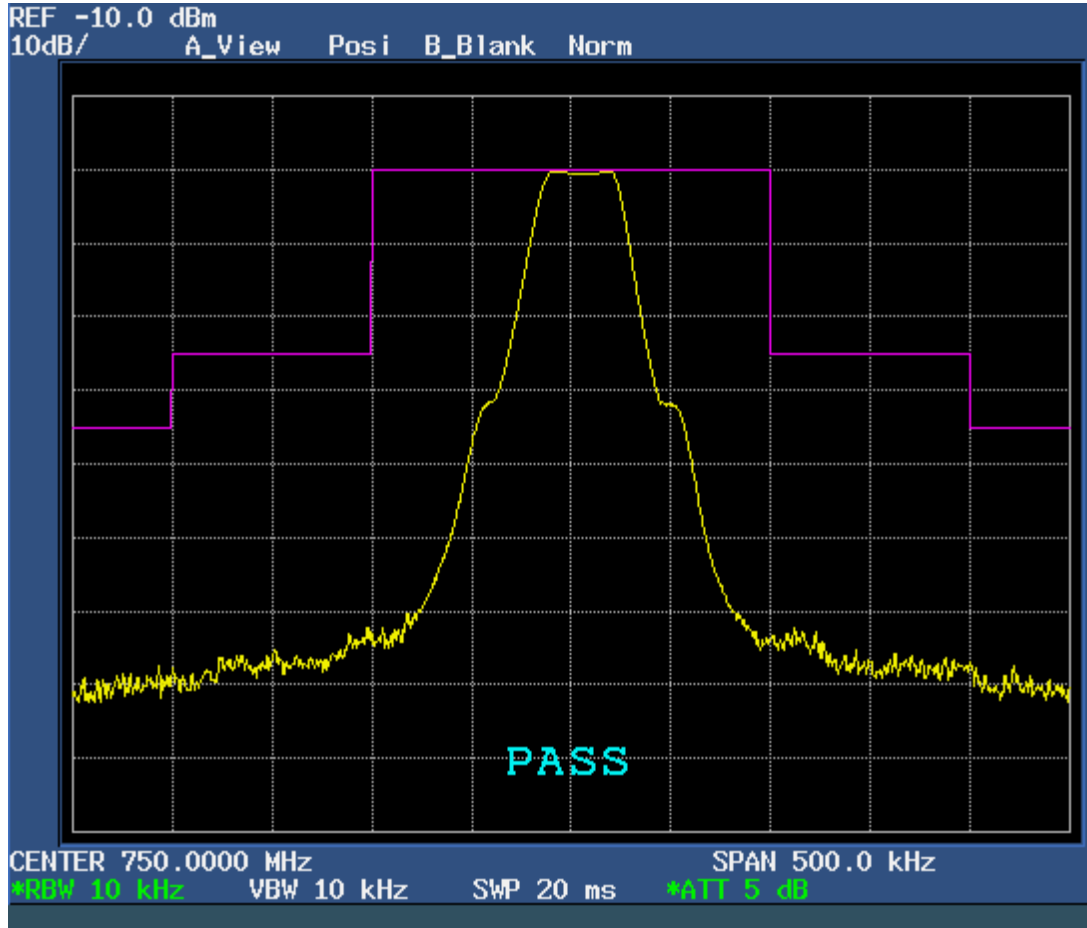


Audio test level: 101.9 dB μ V / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

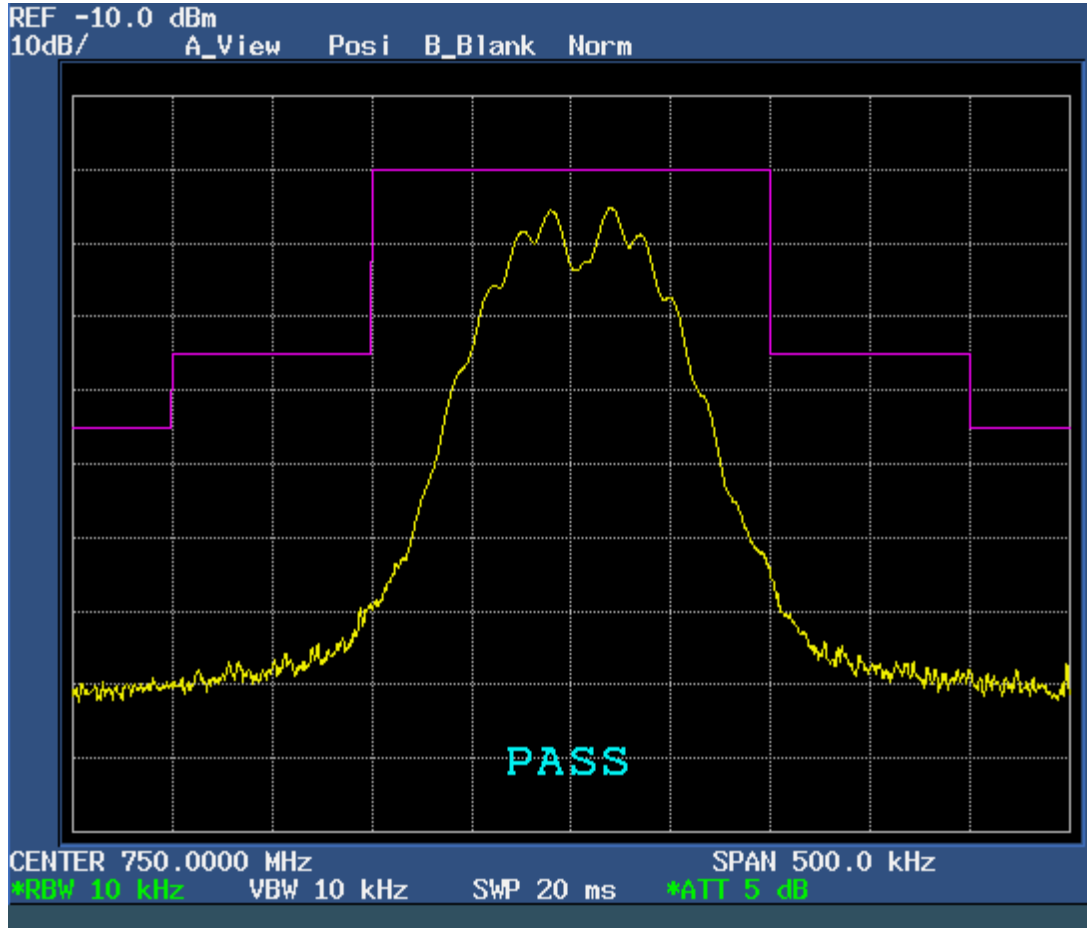


Audio test level: 101.9 dBμV / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

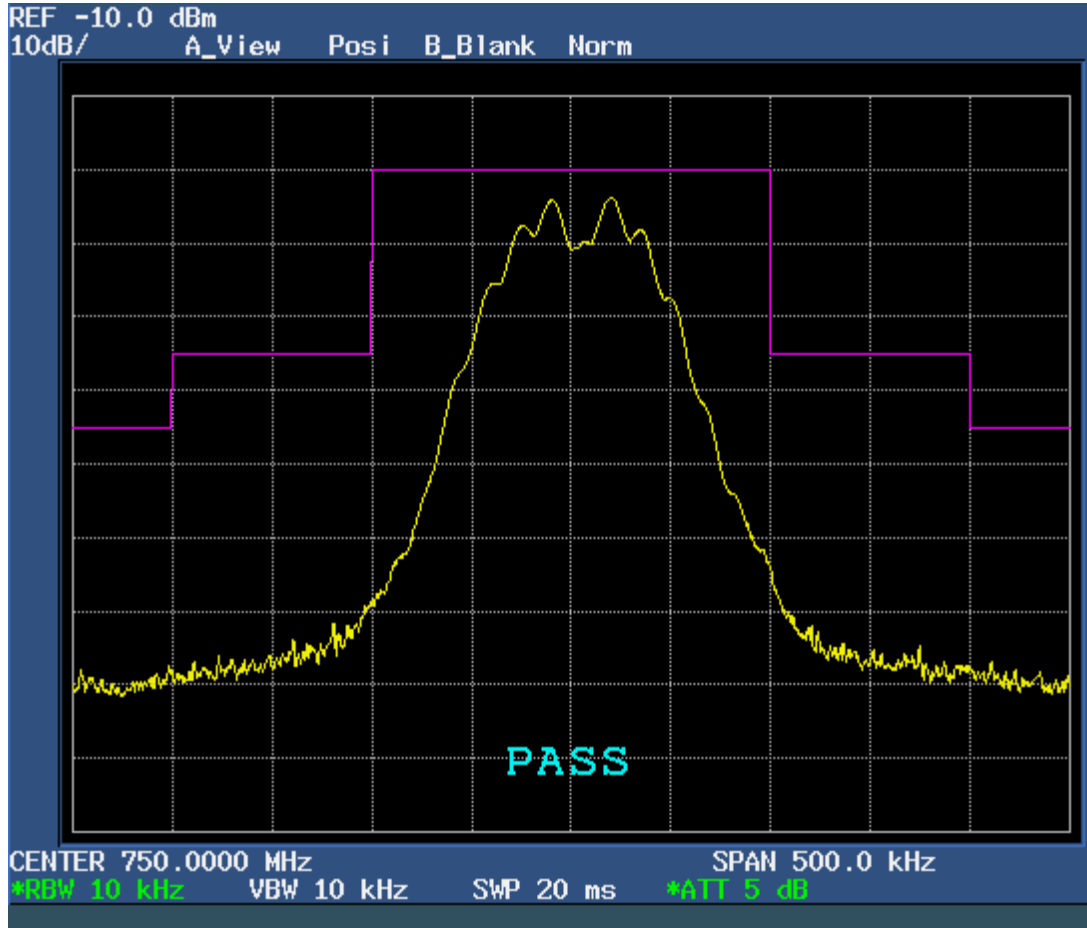


Audio test level: 101.9 dB μ V / 15 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

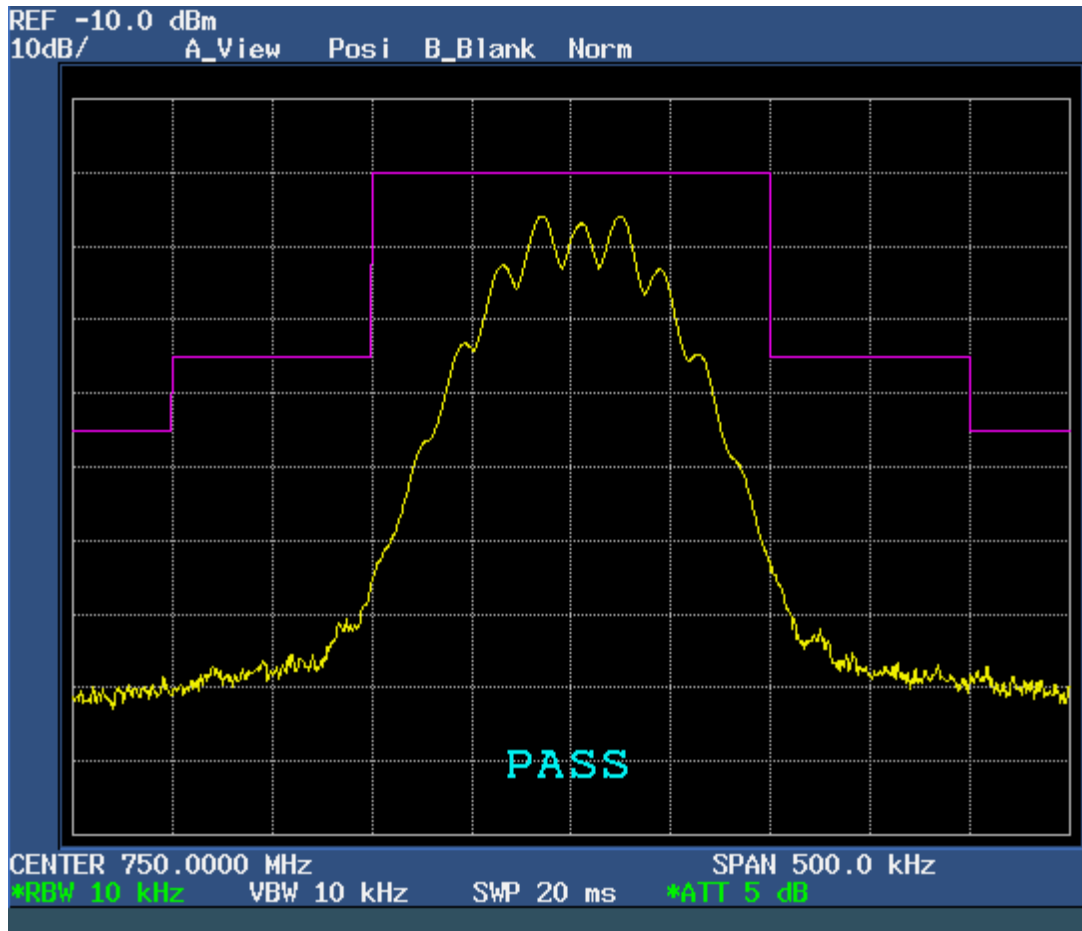


Audio test level: 101.9 dB μ V / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

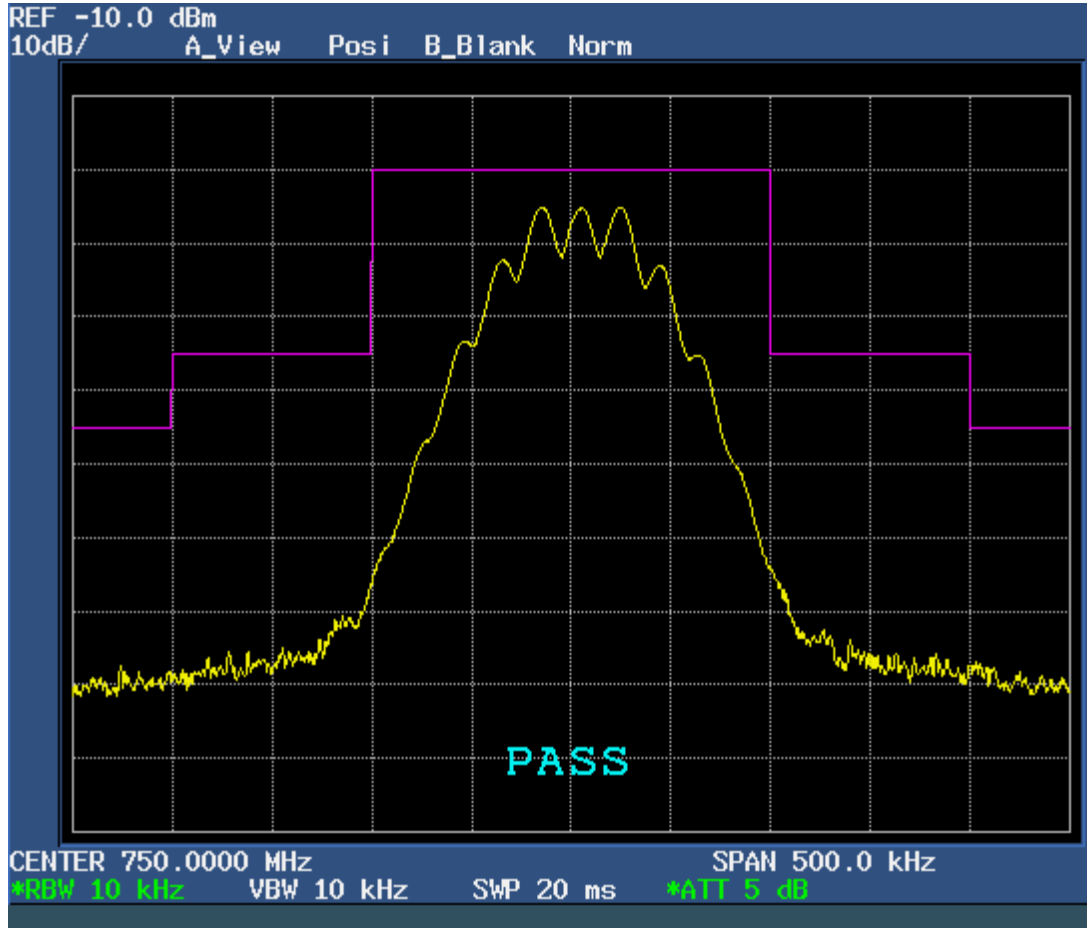


Audio test level: 101.9 dB μ V / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

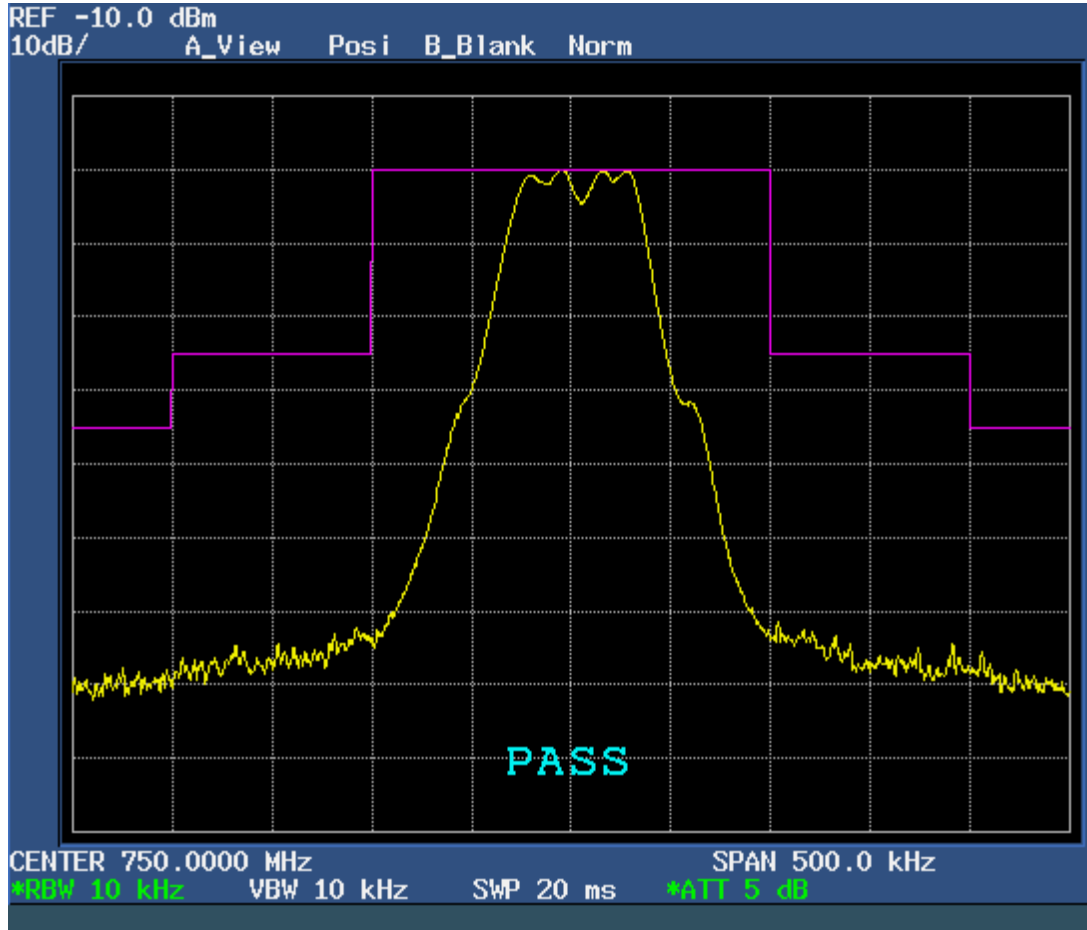


Audio test level: 101.9 dB μ V / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

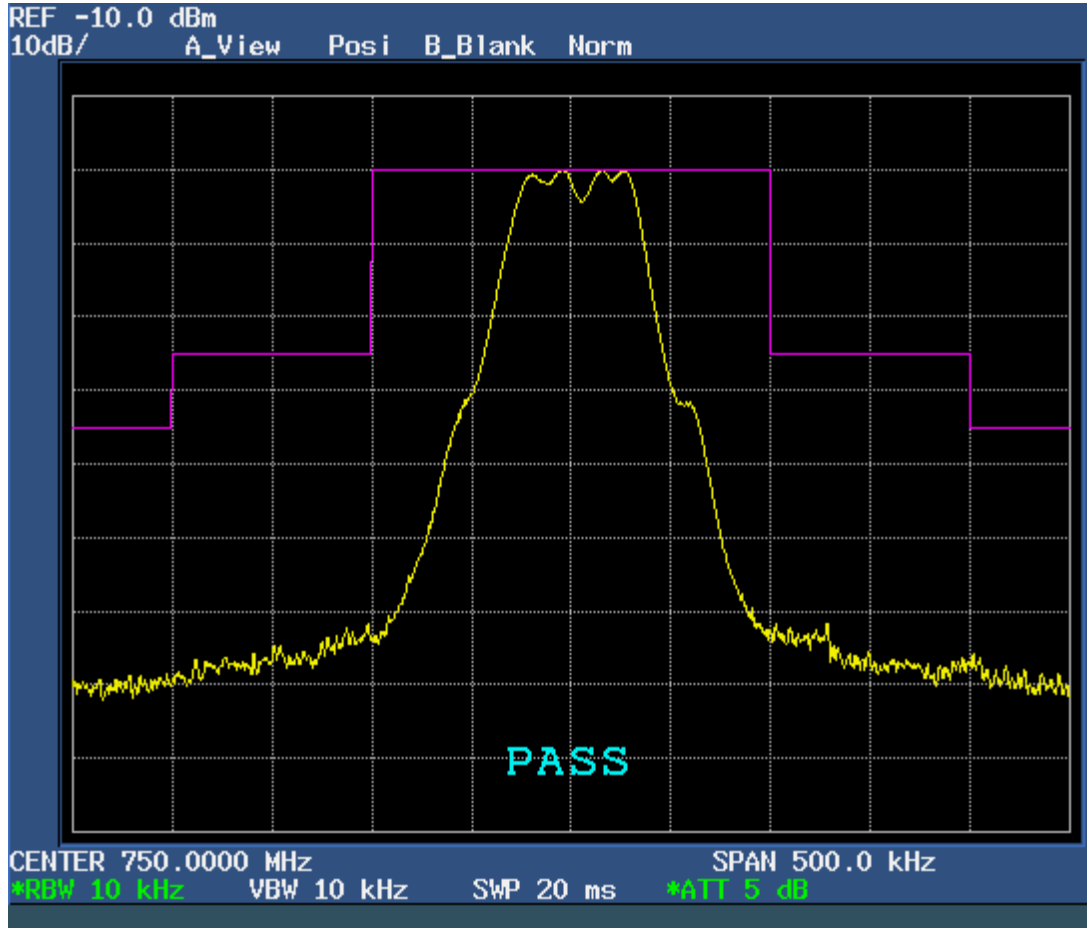


Audio test level: 350 mV / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

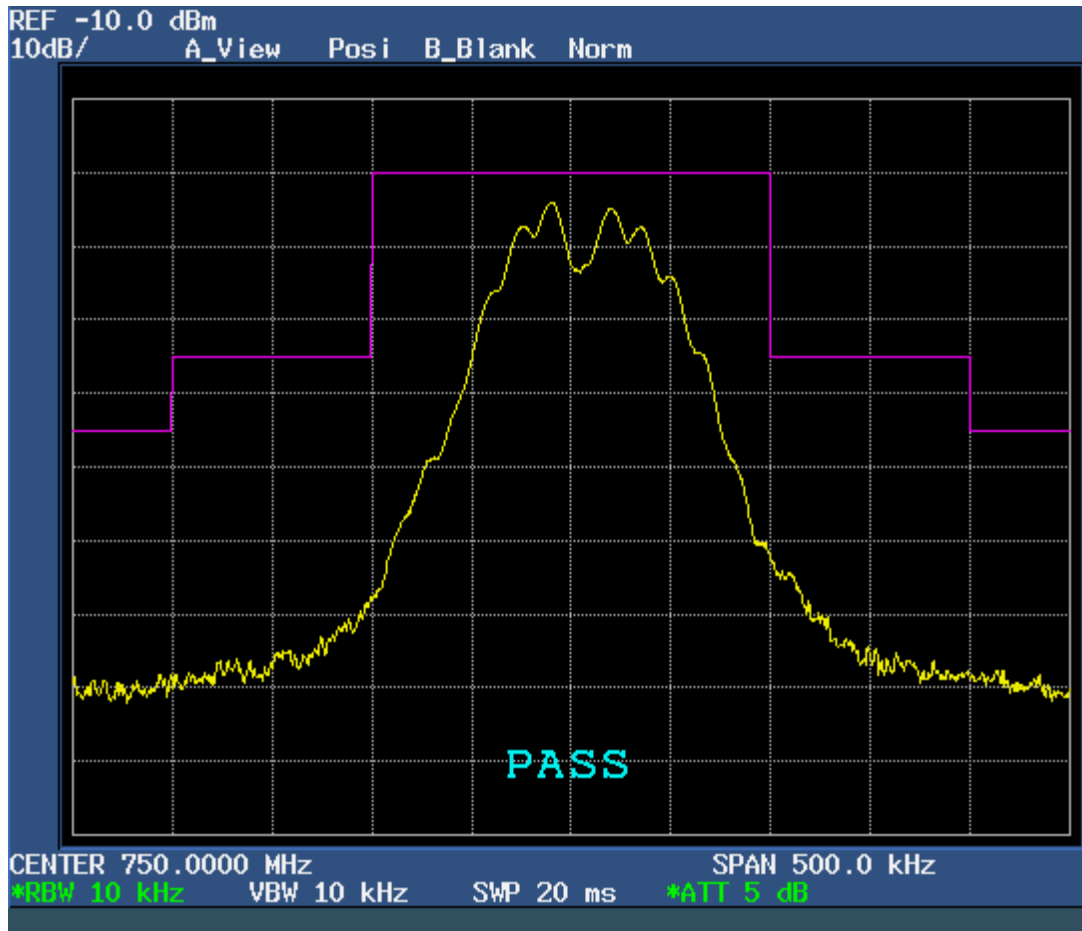


Audio test level: 350 mV / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

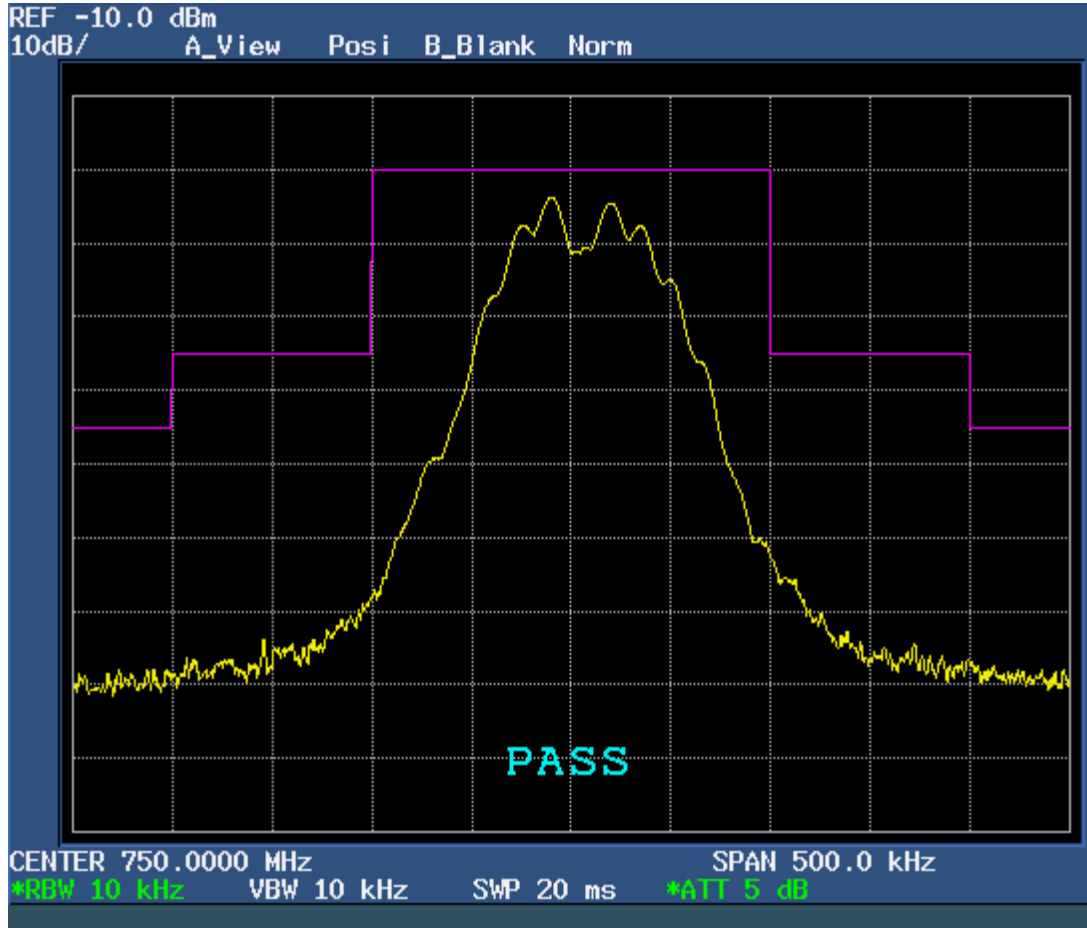


Audio test level: 350 mV / 2.1 V
DC supply voltage: 15 kHz

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

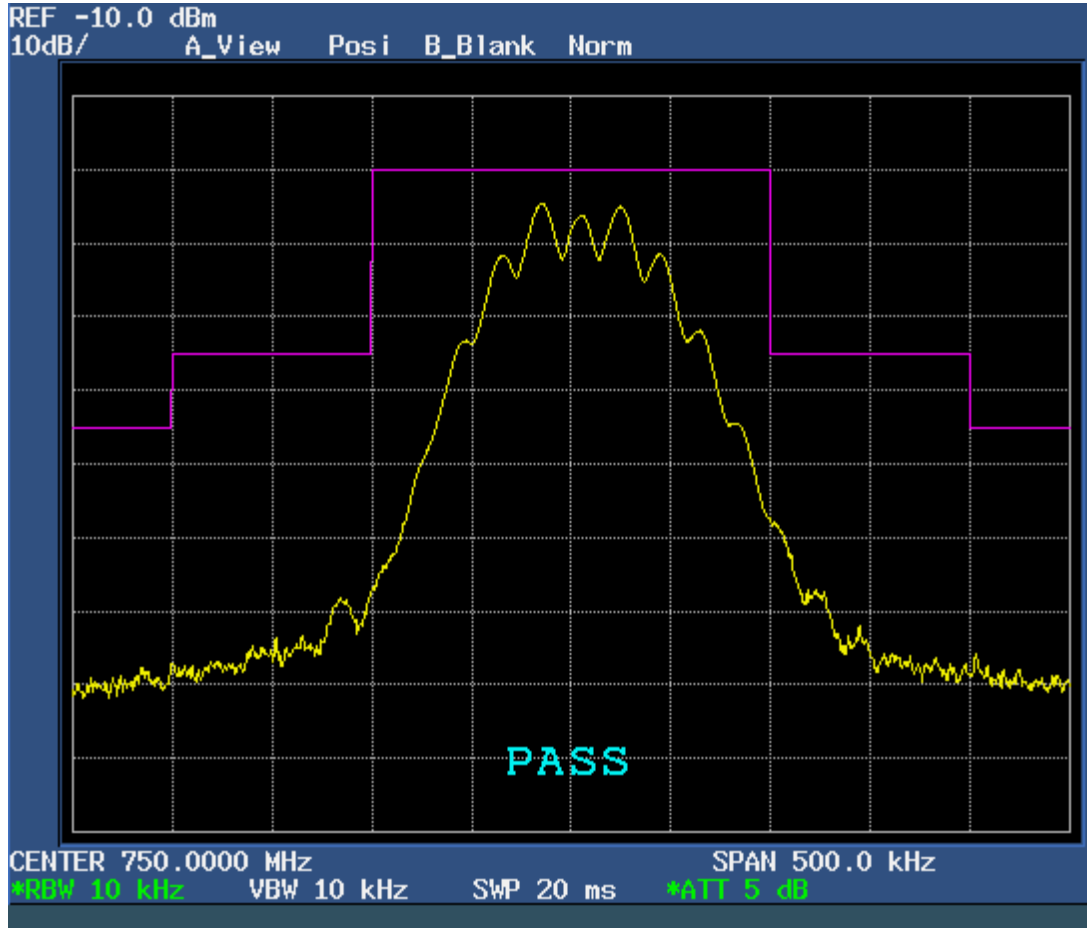


Audio test level: 350 mV / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

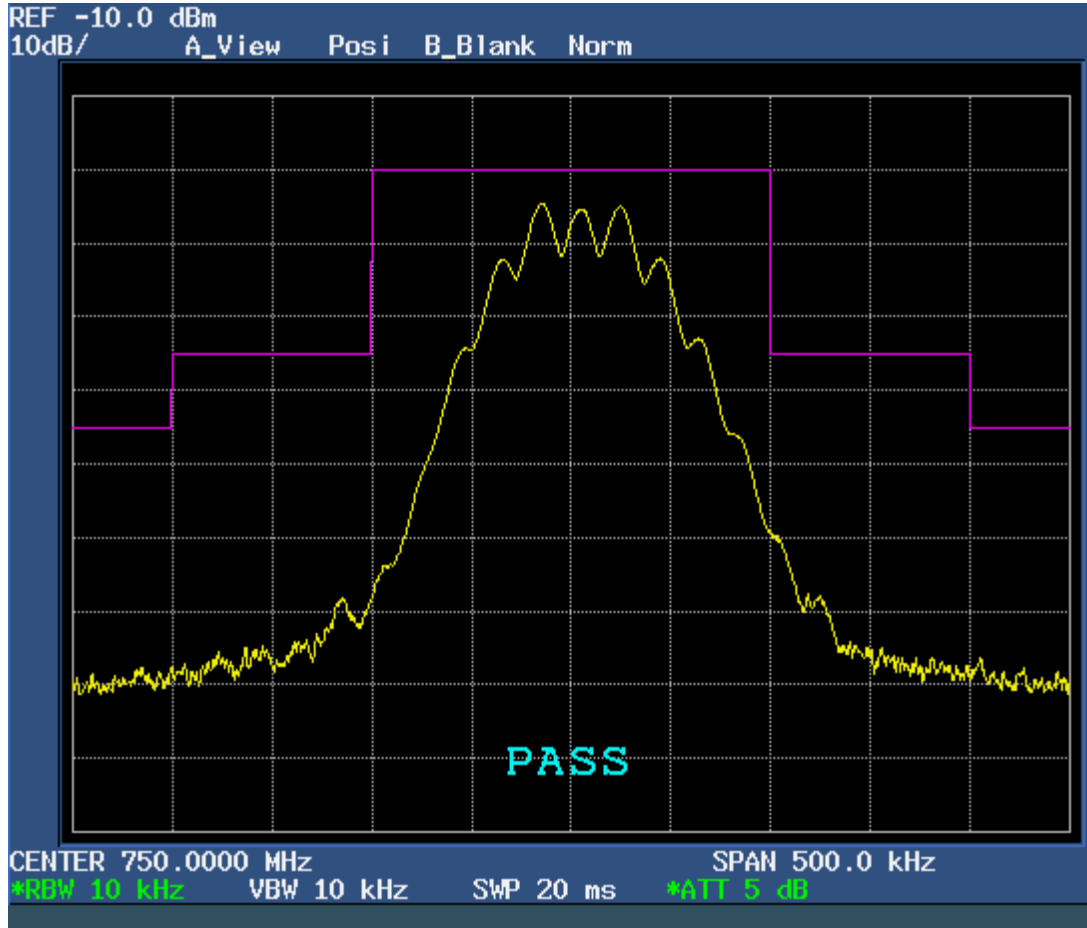


Audio test level: 350 mV / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band III - 750 MHz

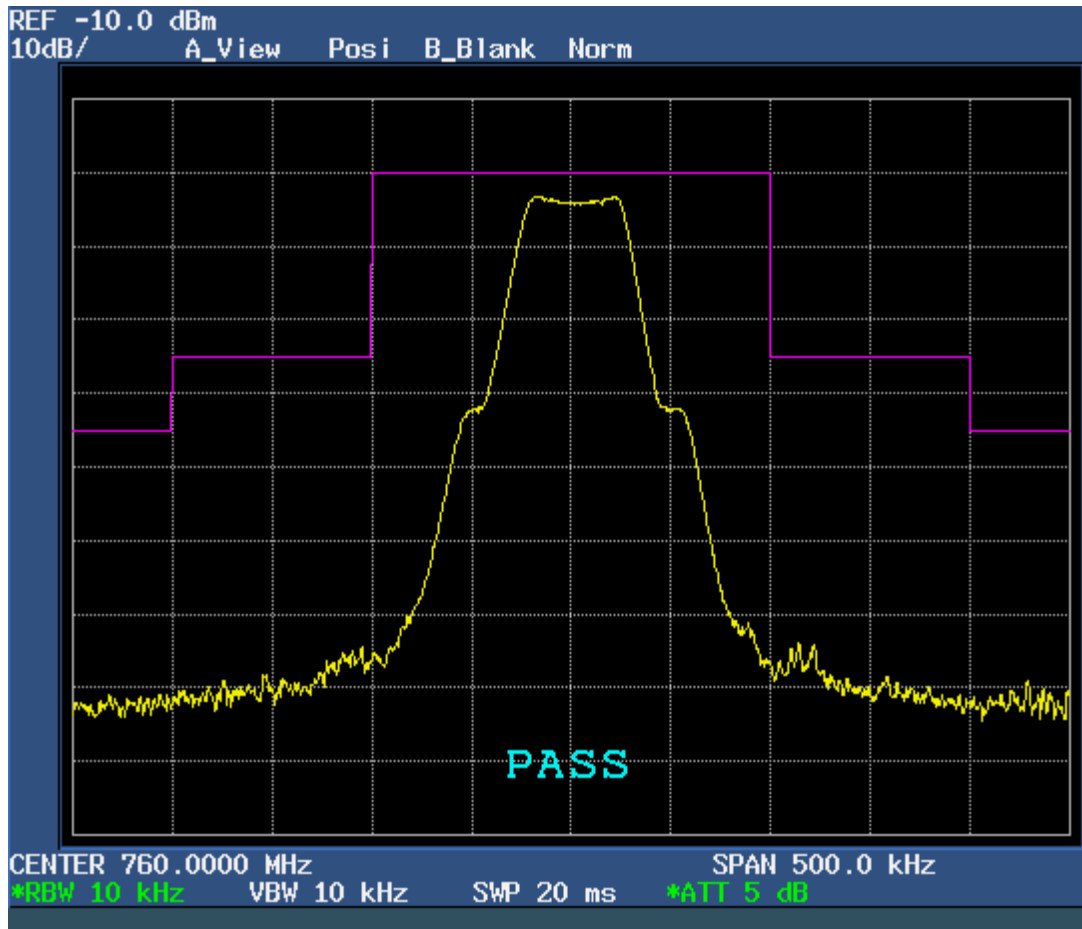


Audio test level: 350 mV / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

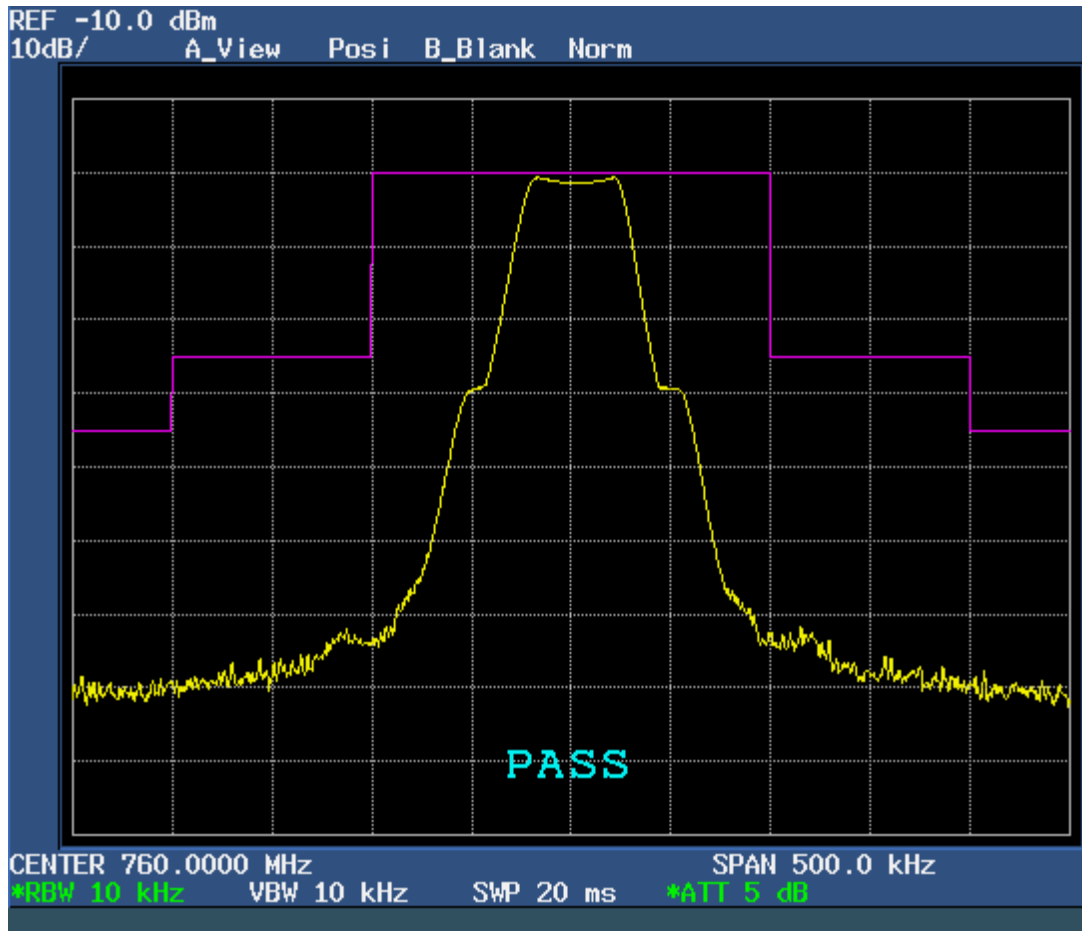


Audio test level: 100.6 dB μ V / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

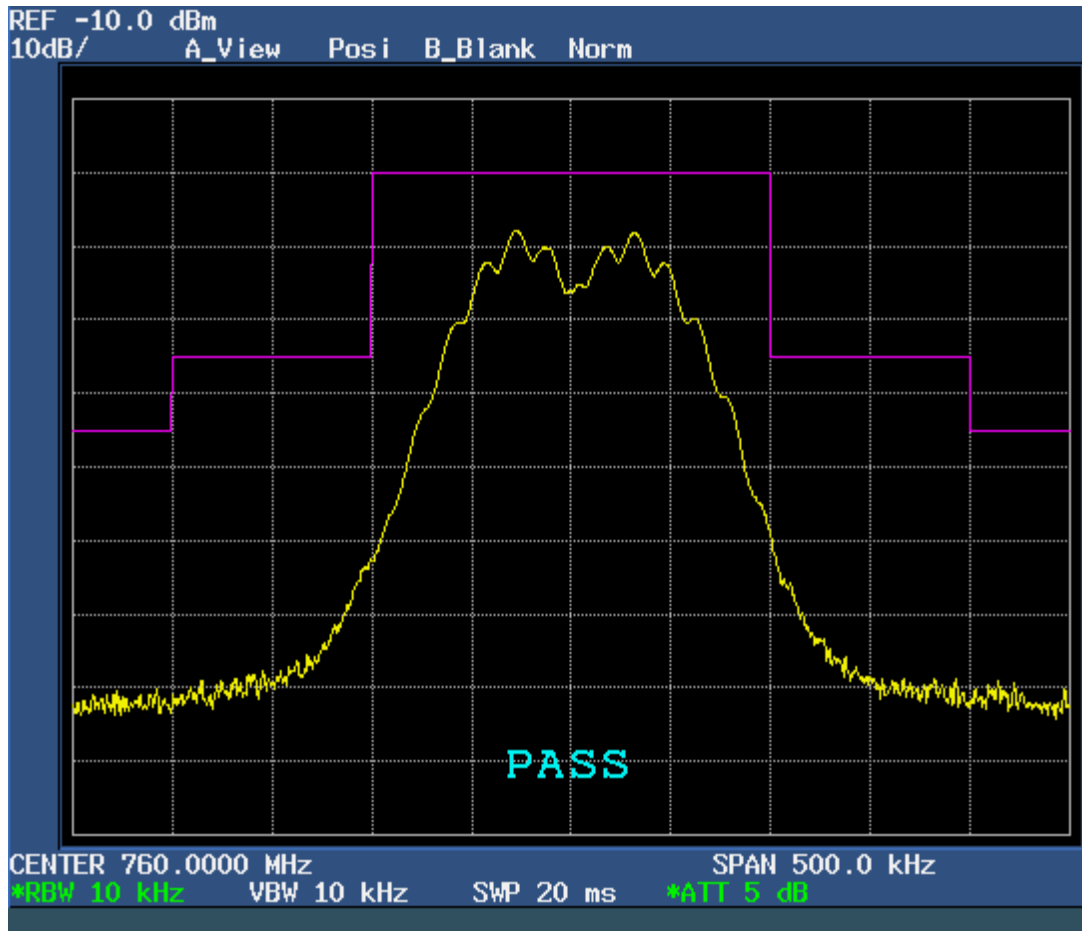


Audio test level: 100.6 dB μ V / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

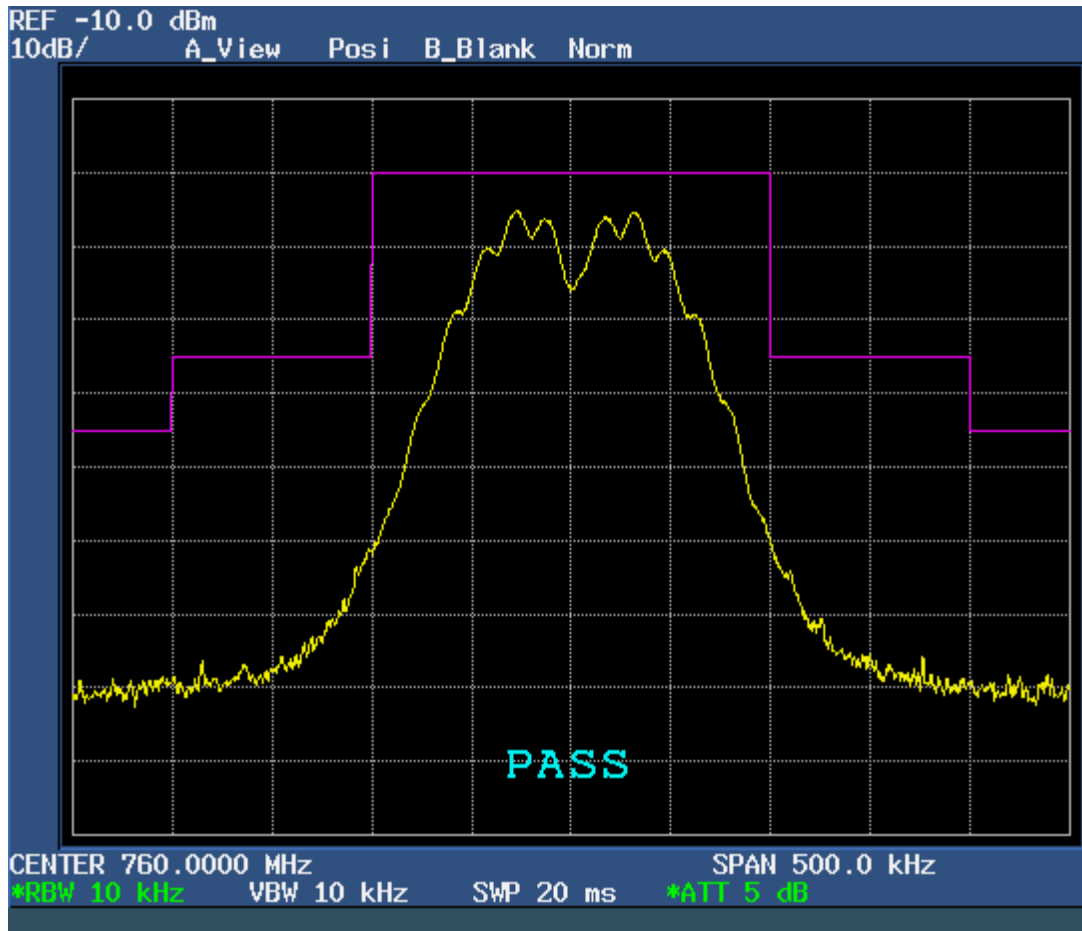


Audio test level: 100.6 dB μ V / 15 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

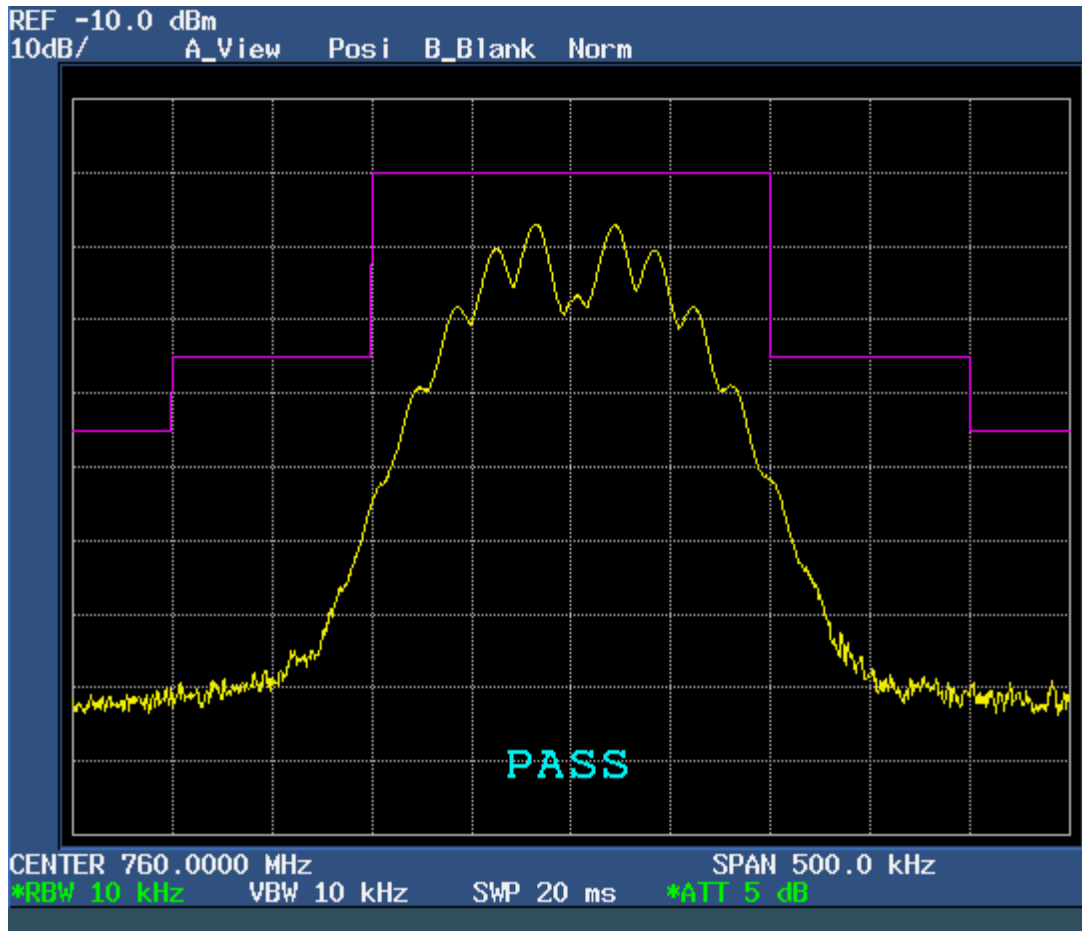


Audio test level: 100.6 dB μ V / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

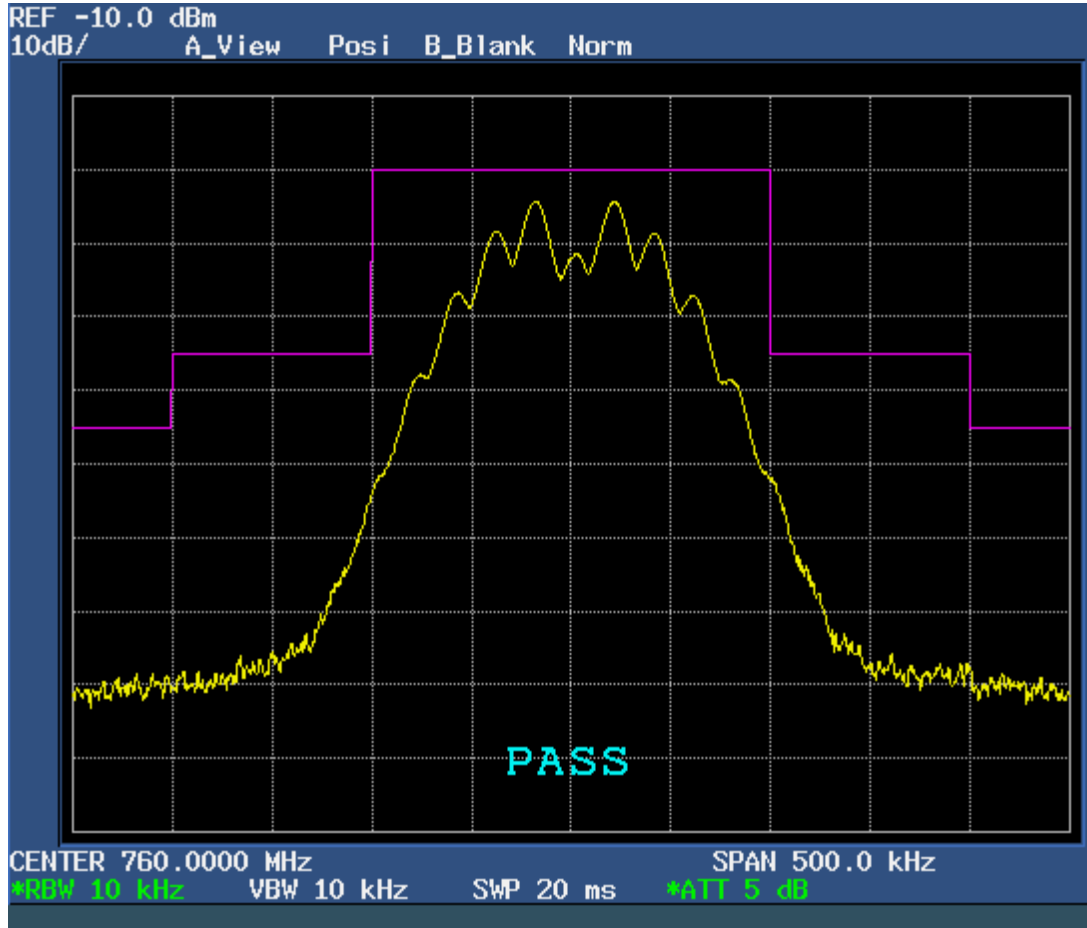


Audio test level: 100.6 dB μ V / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

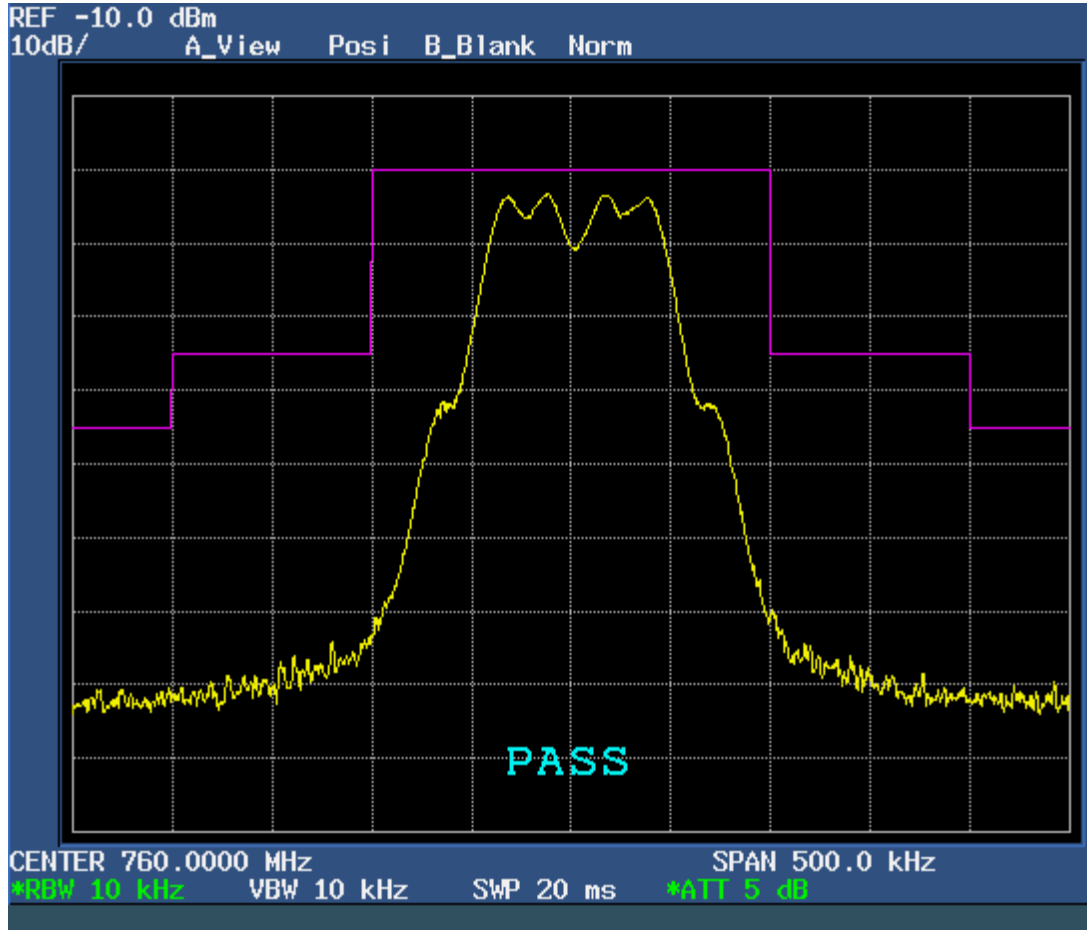


Audio test level: 100.6 dB μ V / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

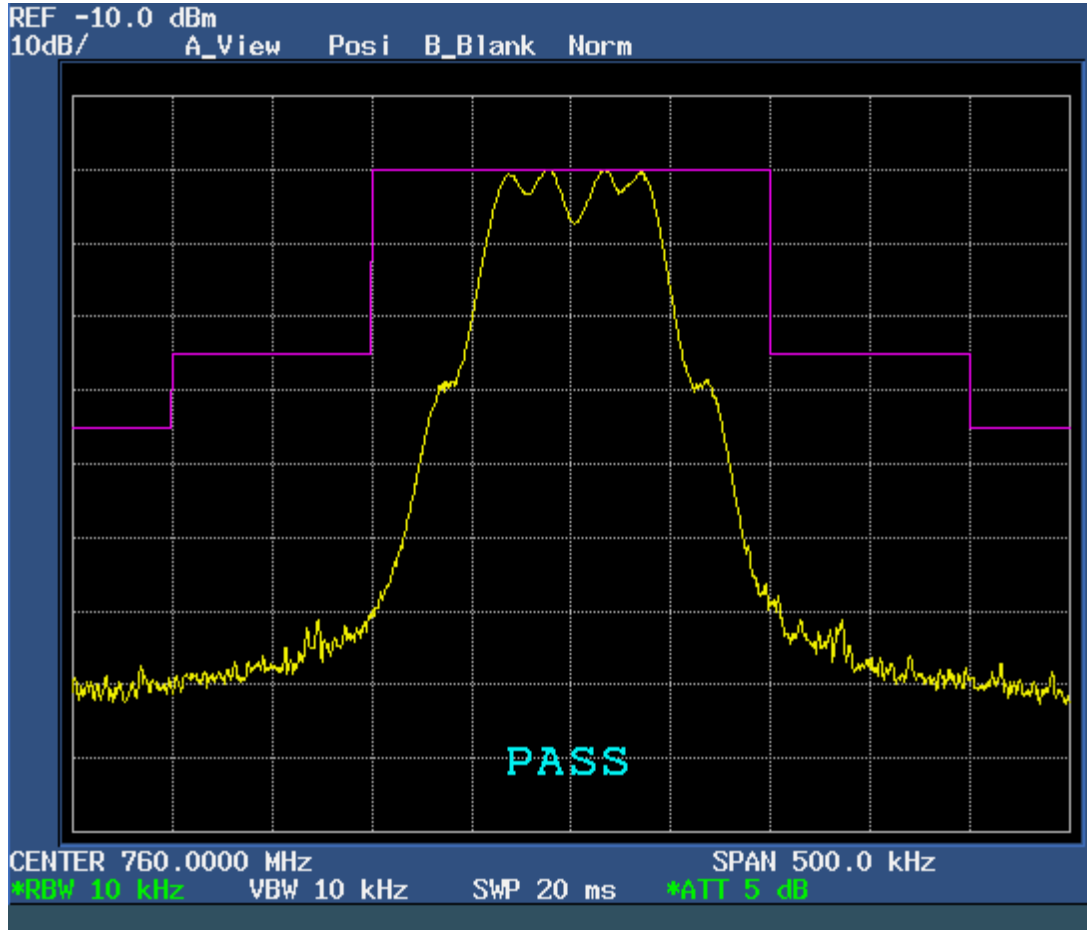


Audio test level: 350 mV / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

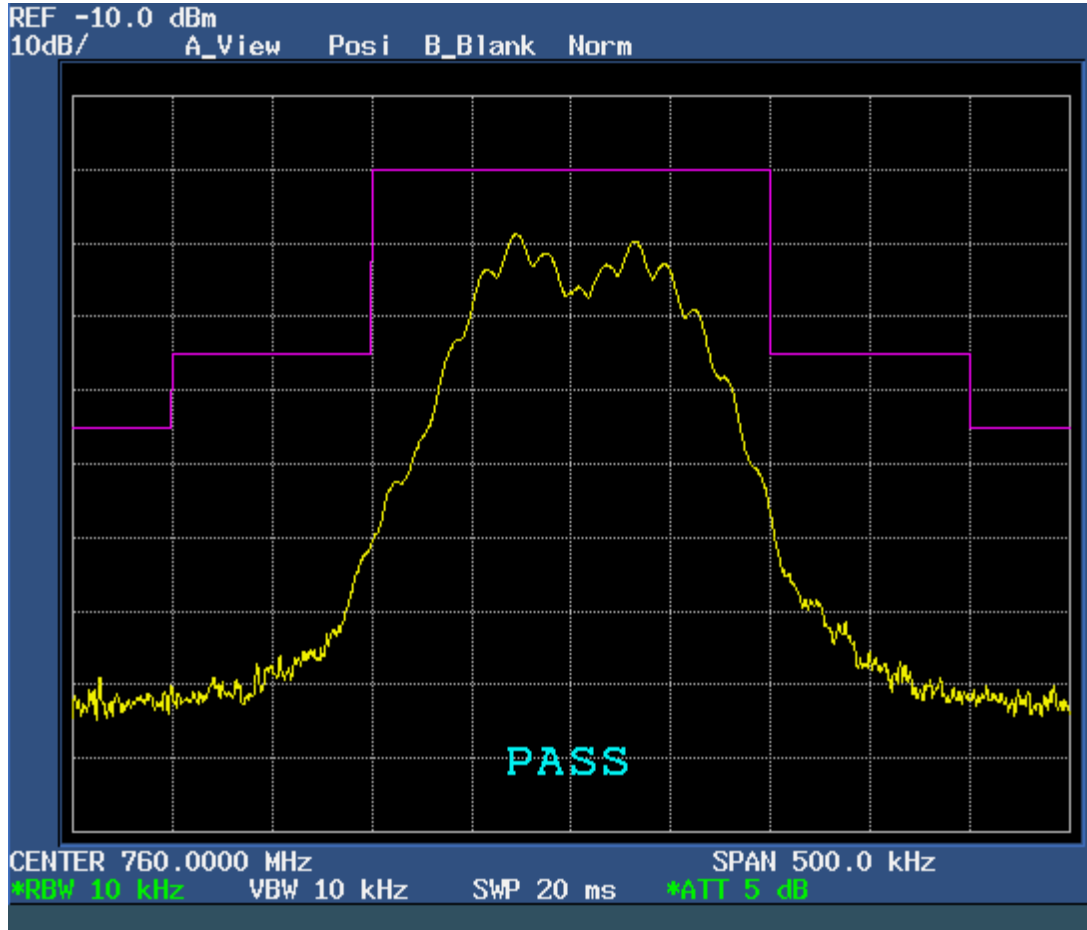


Audio test level: 350 mV / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

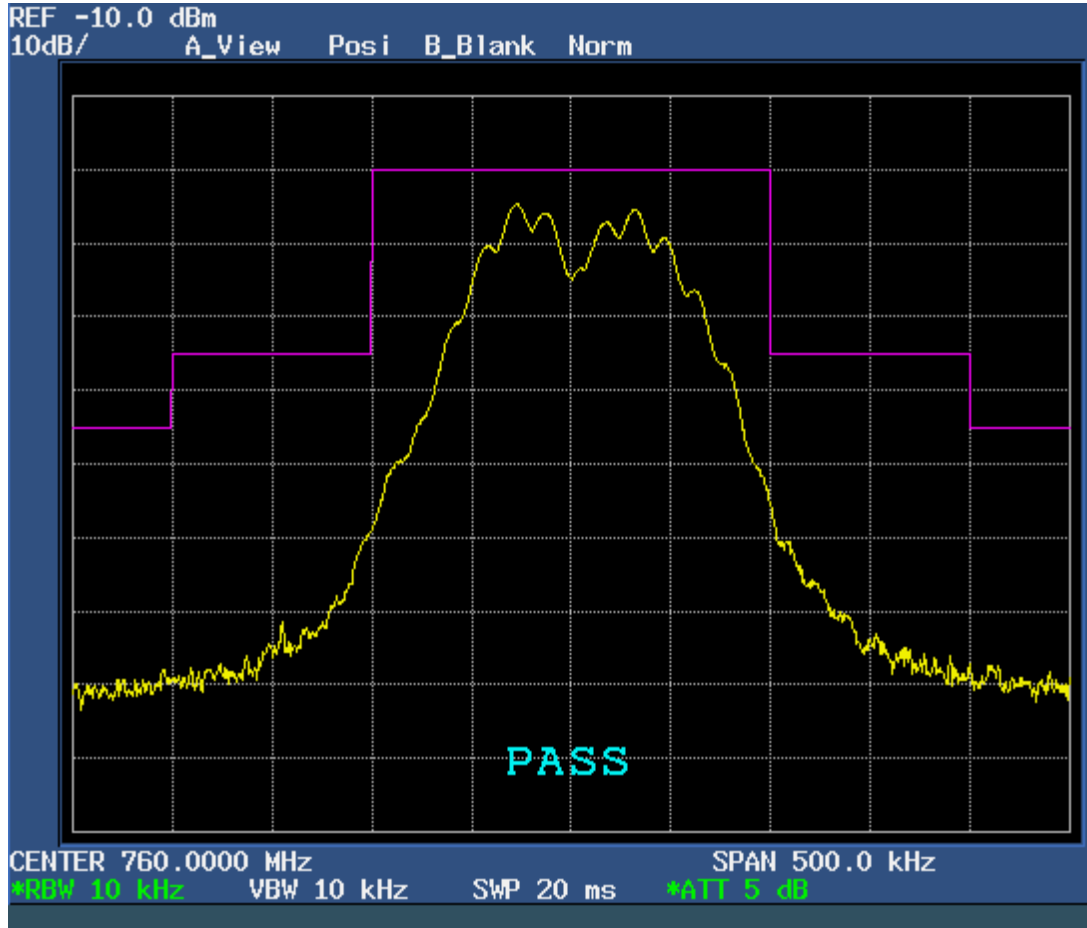


Audio test level: 350 mV / 2.1 V
DC supply voltage: 15 kHz

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz



Audio test level: 350 mV / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

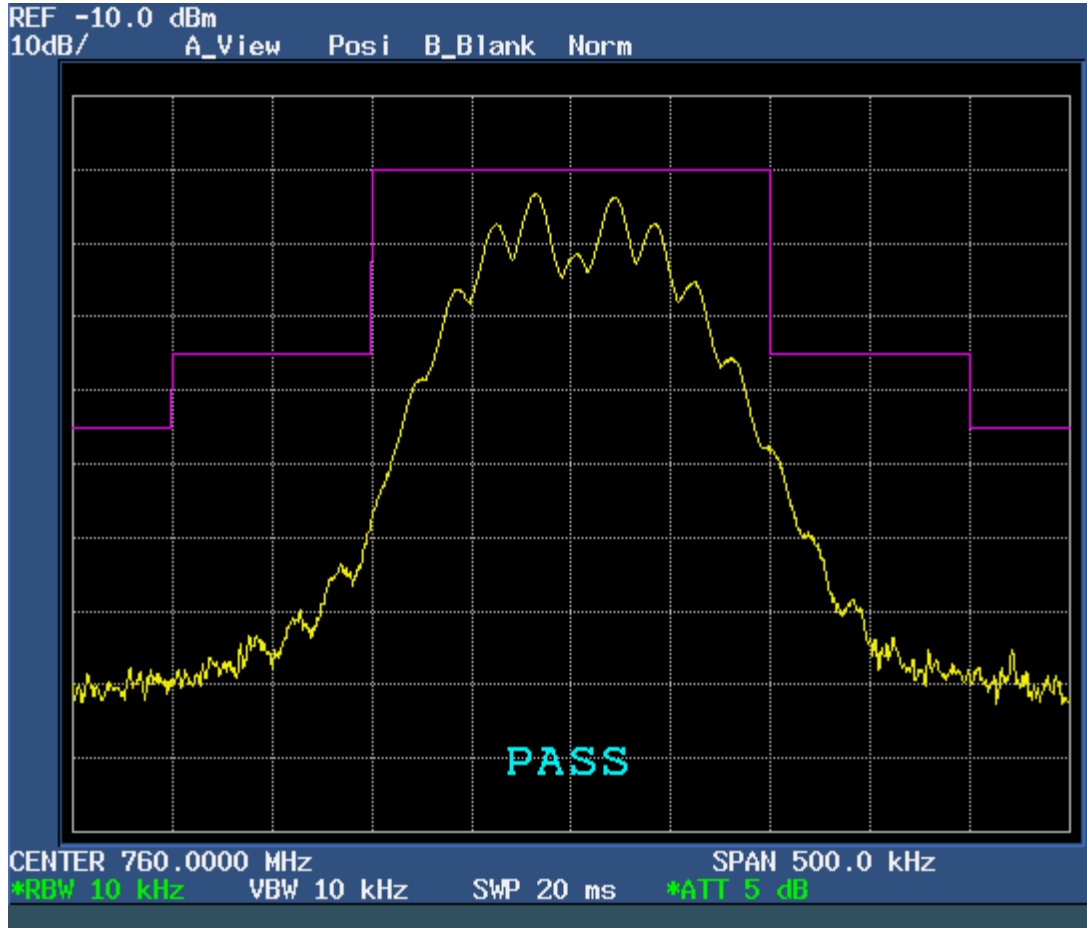


Audio test level: 350 mV / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band IV - 760 MHz

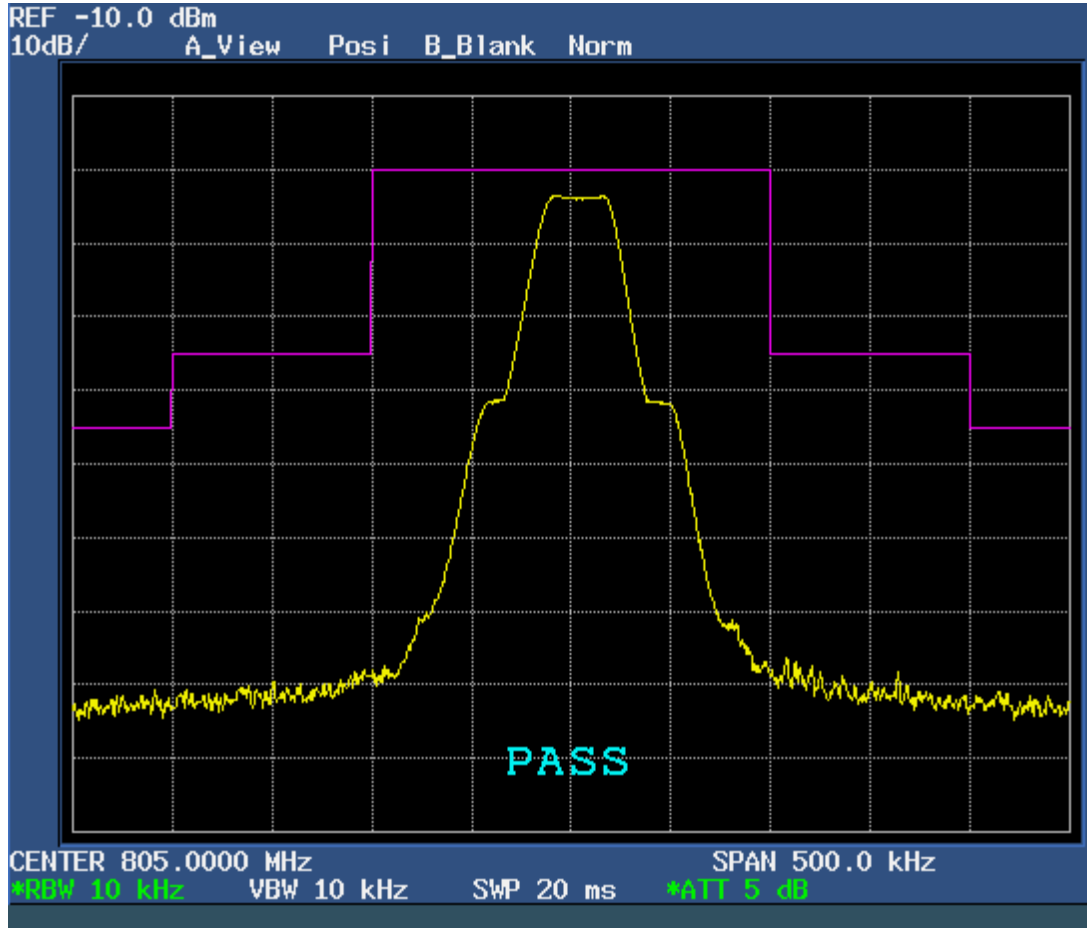


Audio test level: 350 mV / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

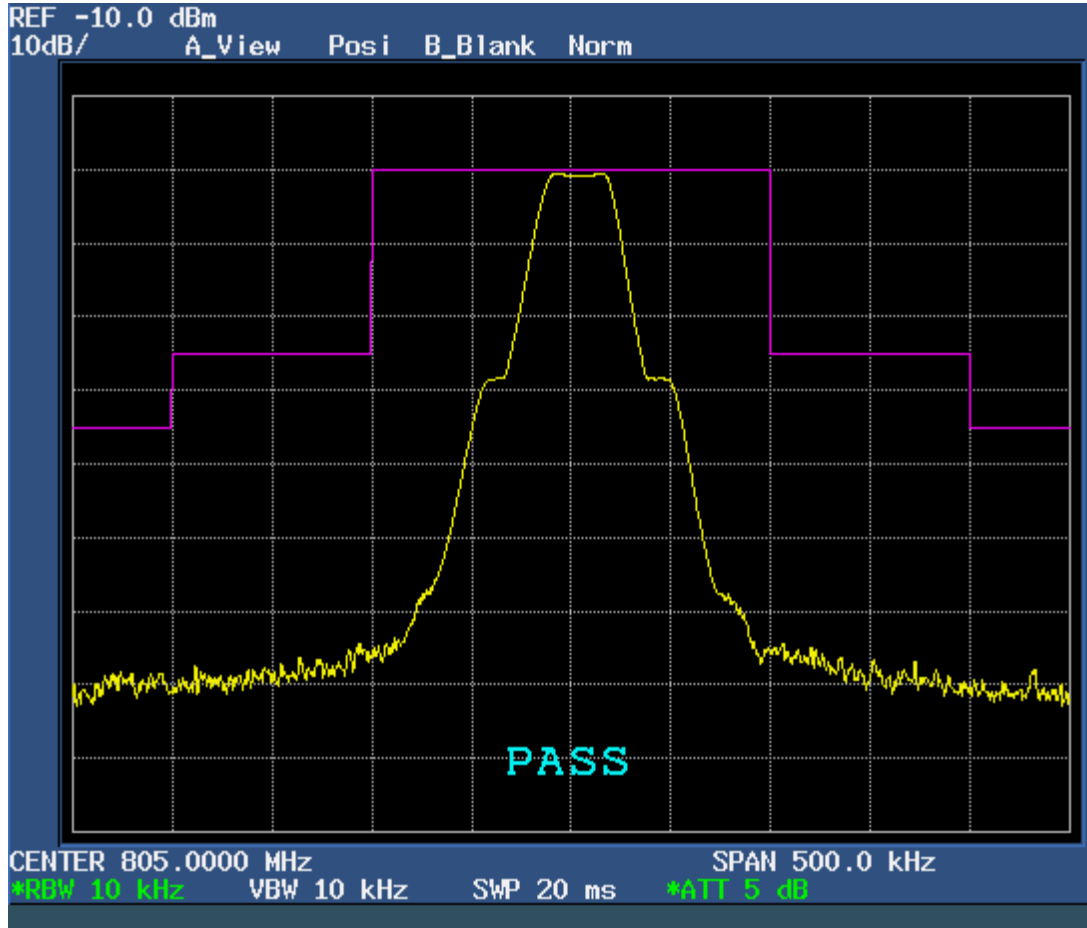


Audio test level: 91.5 dB μ V / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

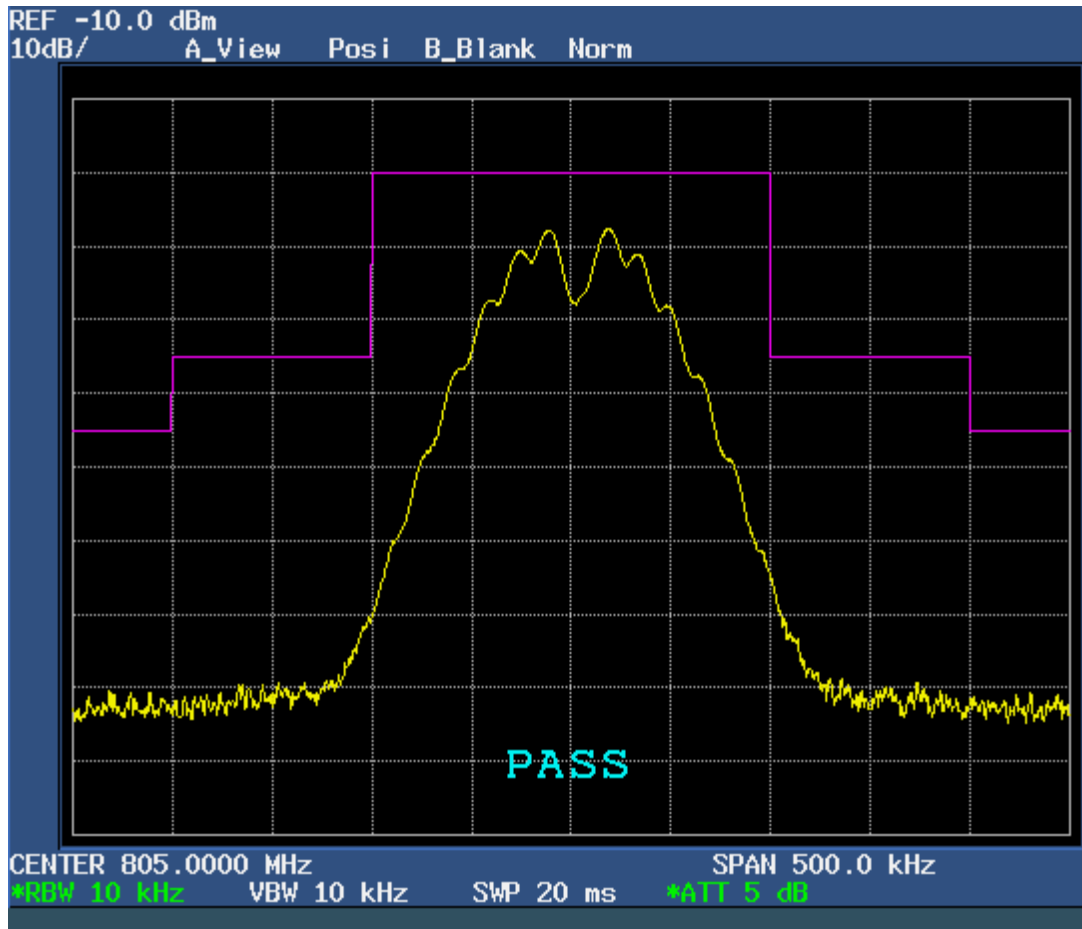


Audio test level: 91.5 dB μ V / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

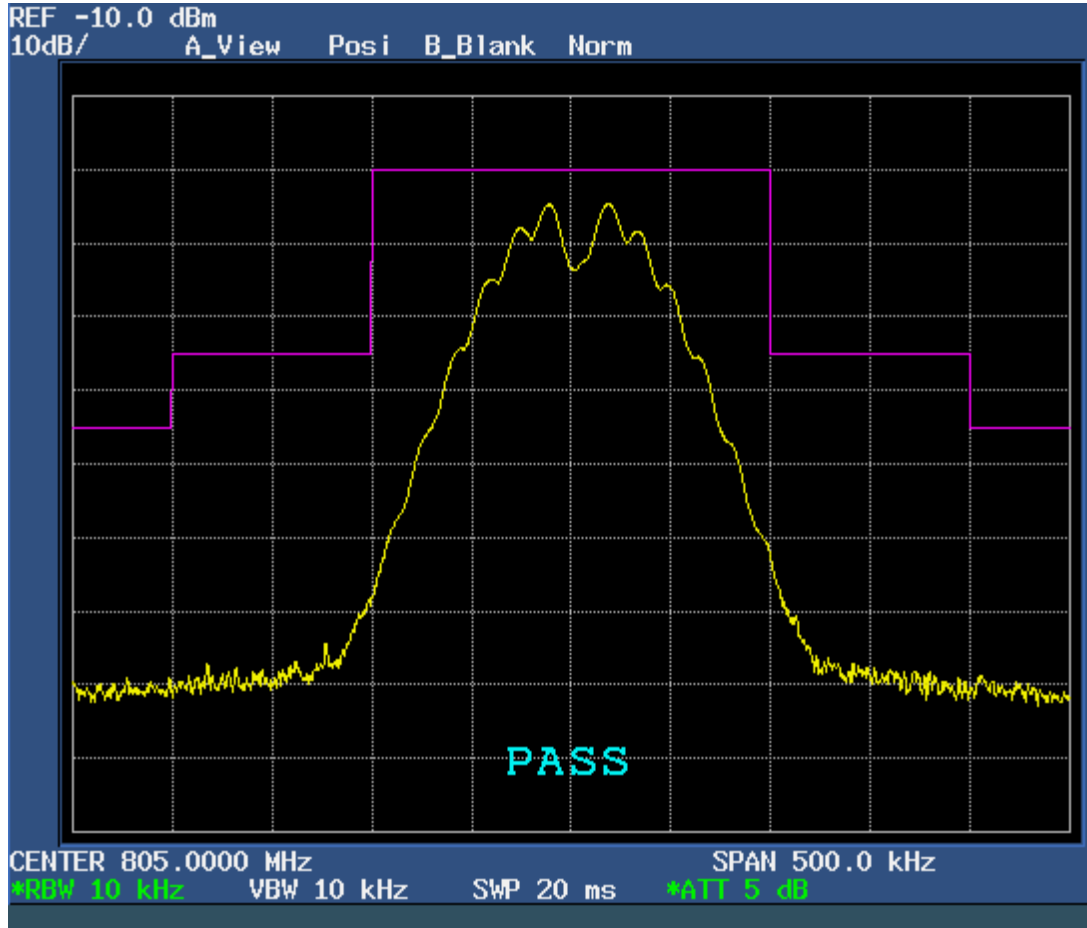


Audio test level: 91.5 dB μ V / 15 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

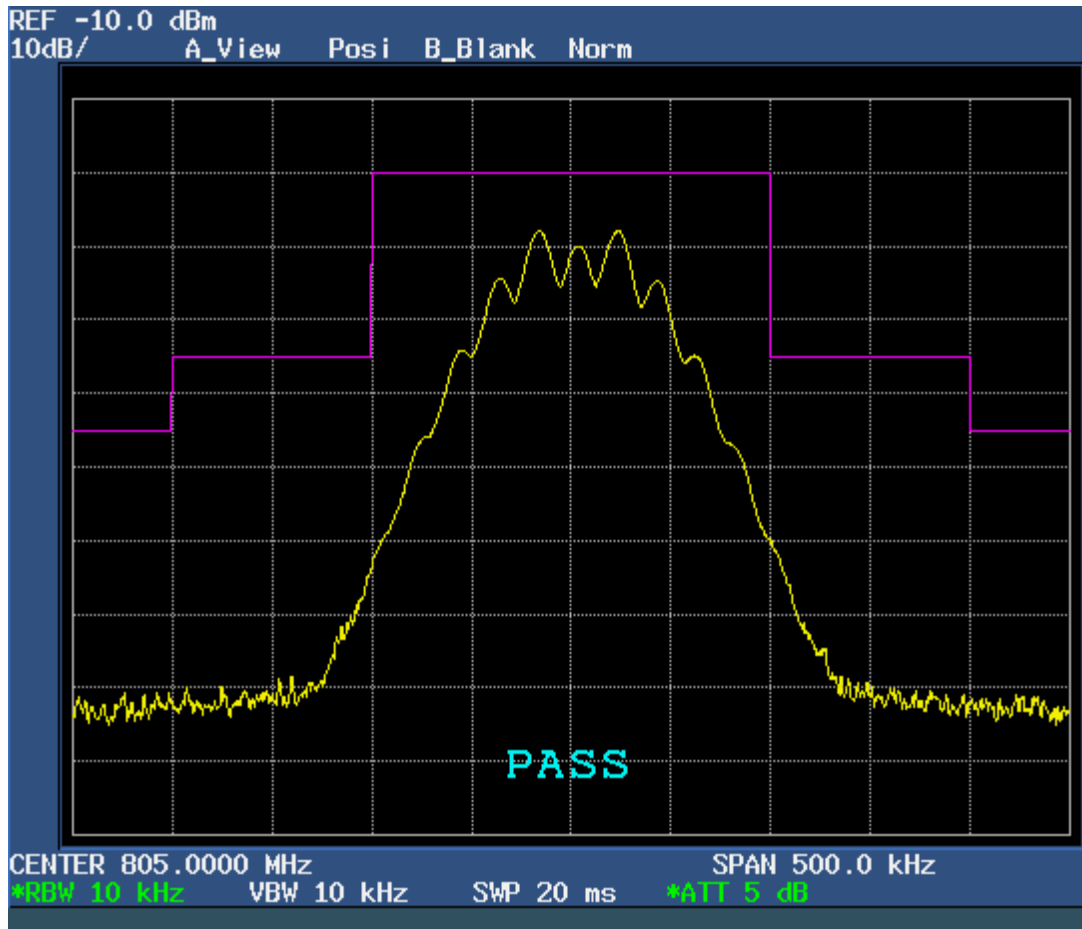


Audio test level: 91.5 dB μ V / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

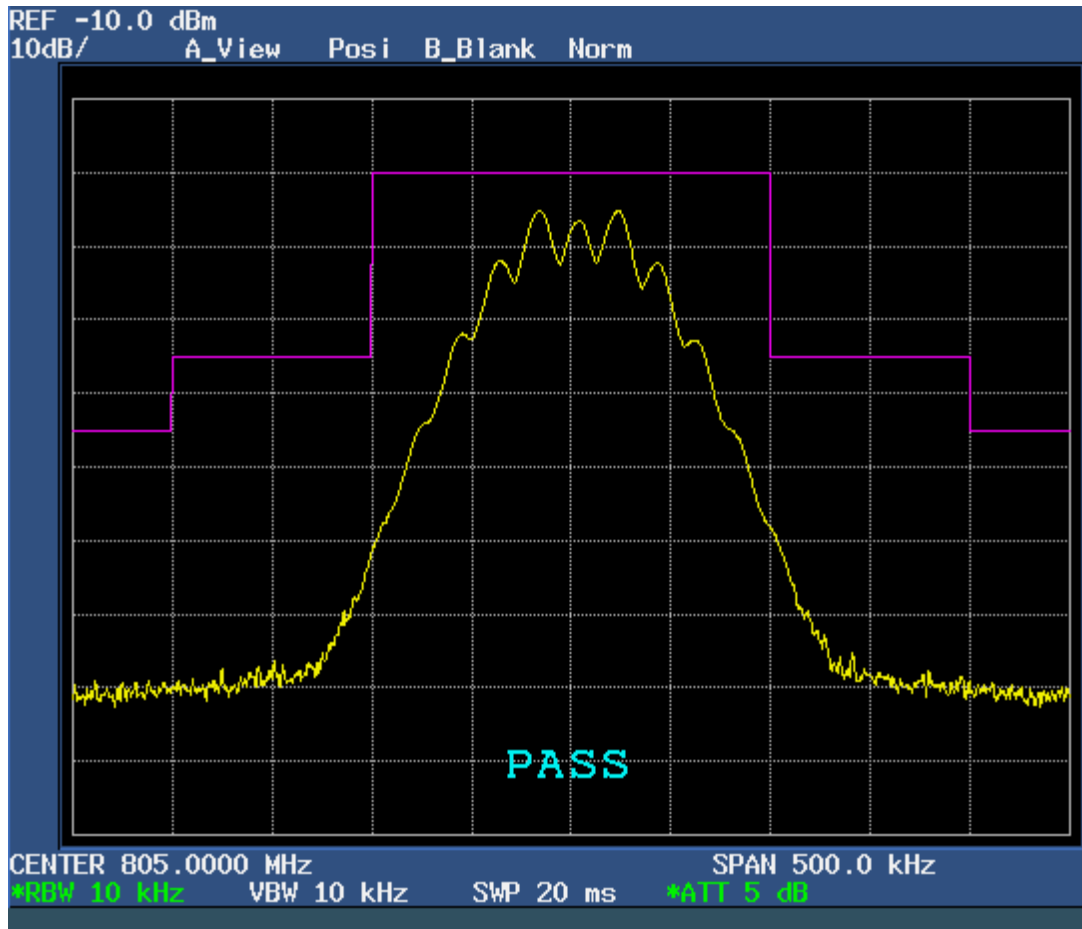


Audio test level: 91.5 dB μ V / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

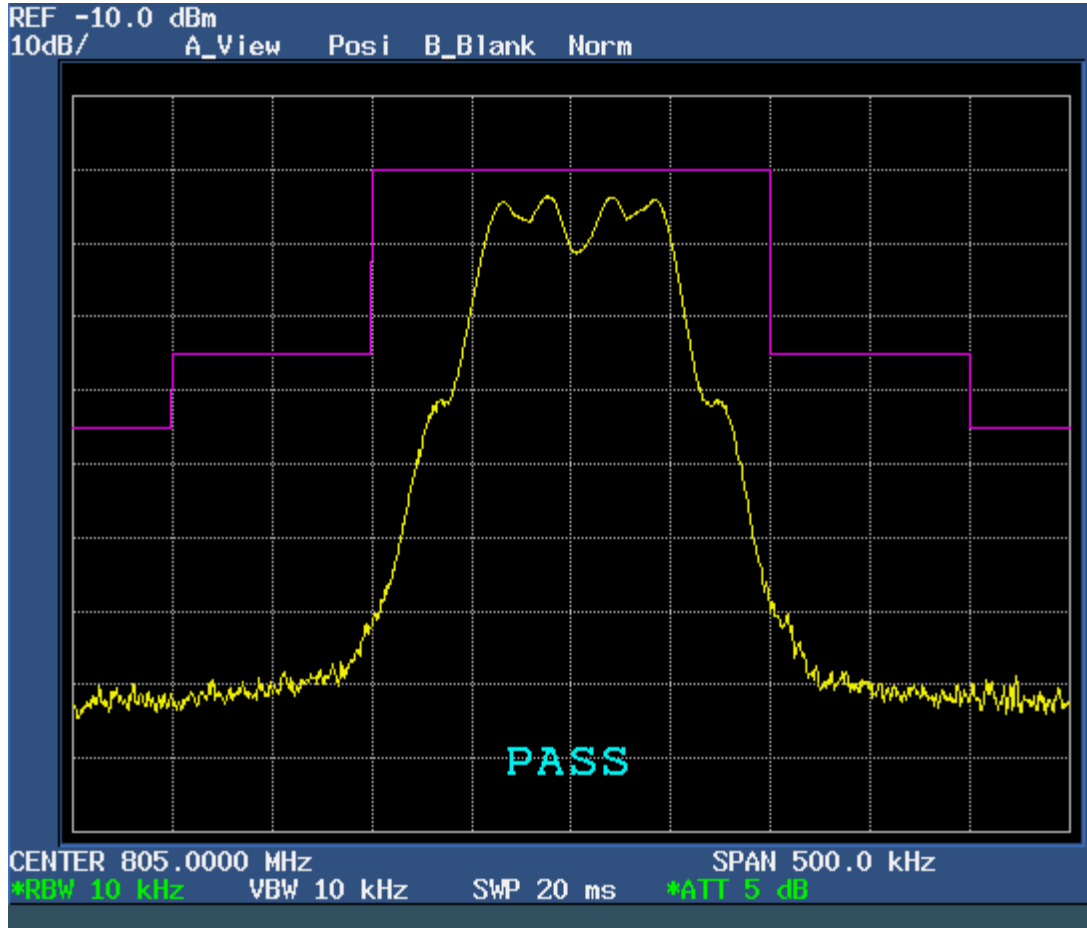


Audio test level: 91.5 dB μ V / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

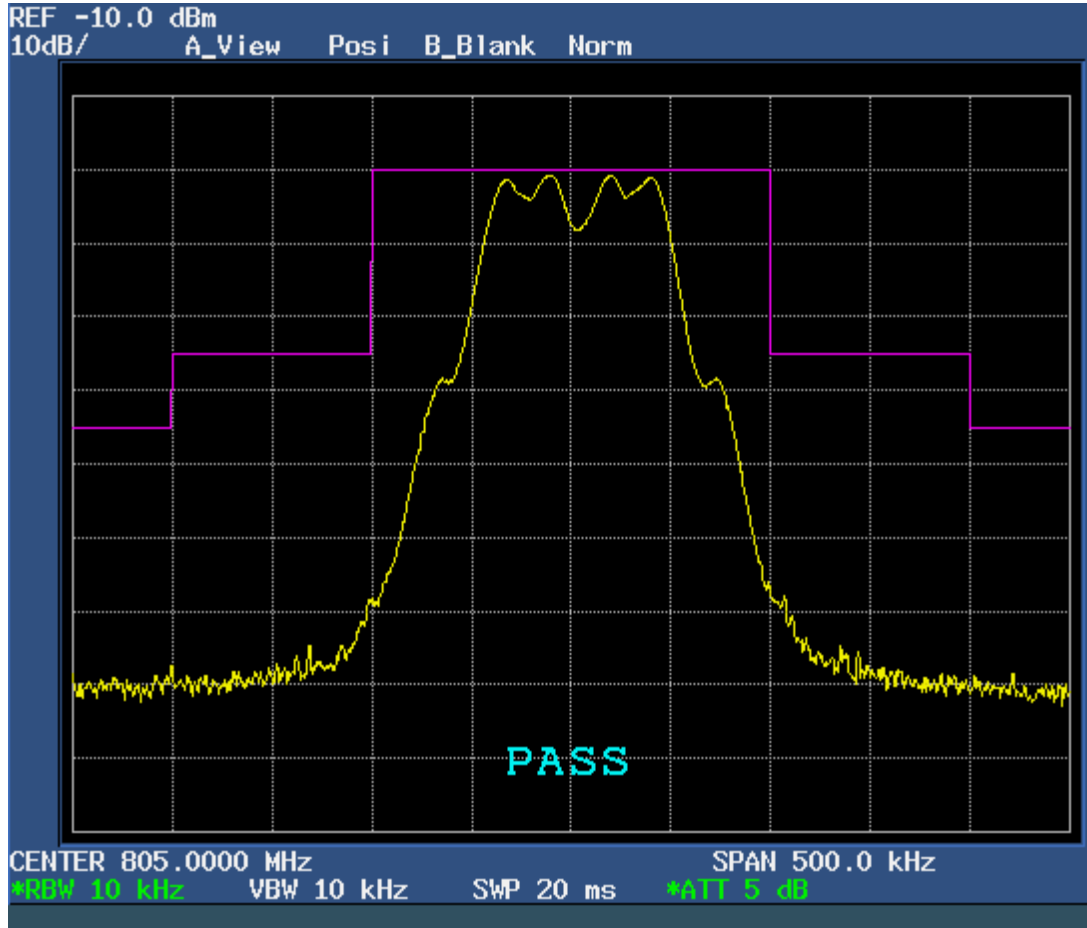


Audio test level: 350 mV / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

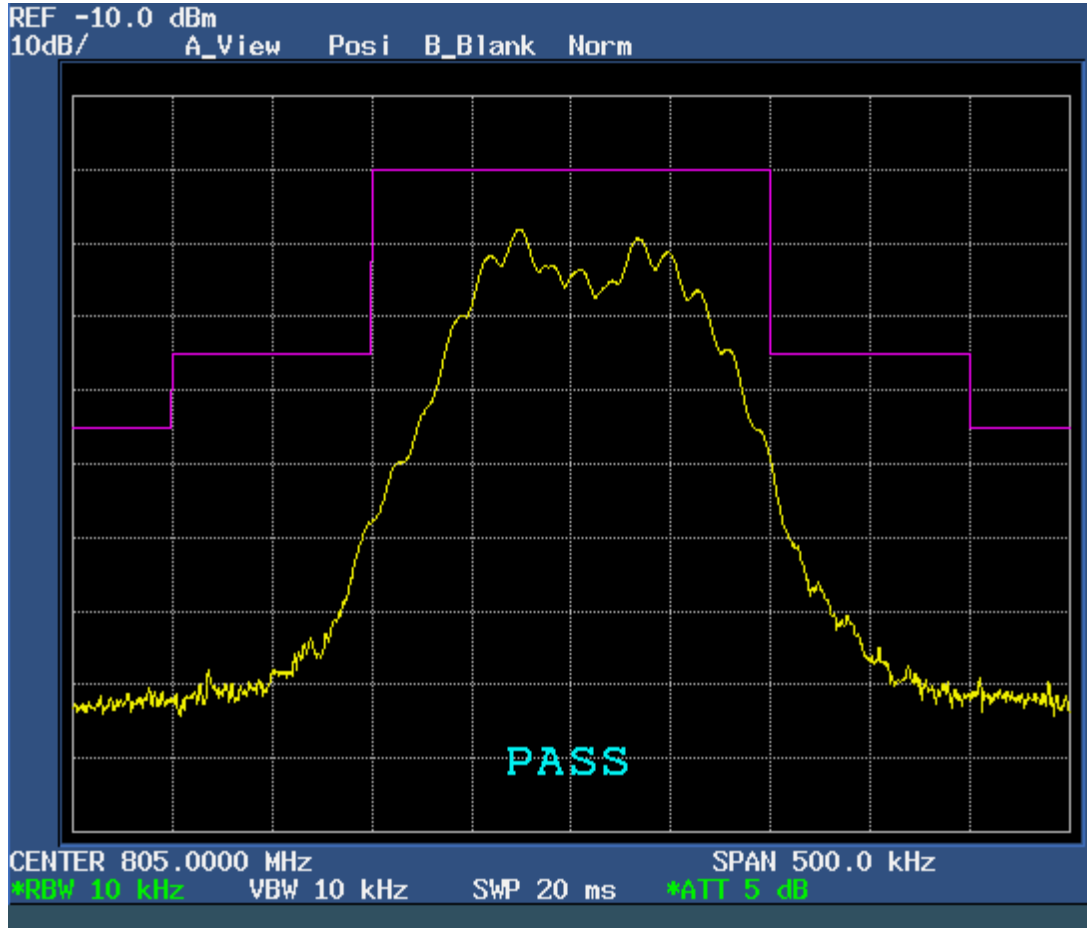


Audio test level: 350 mV / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

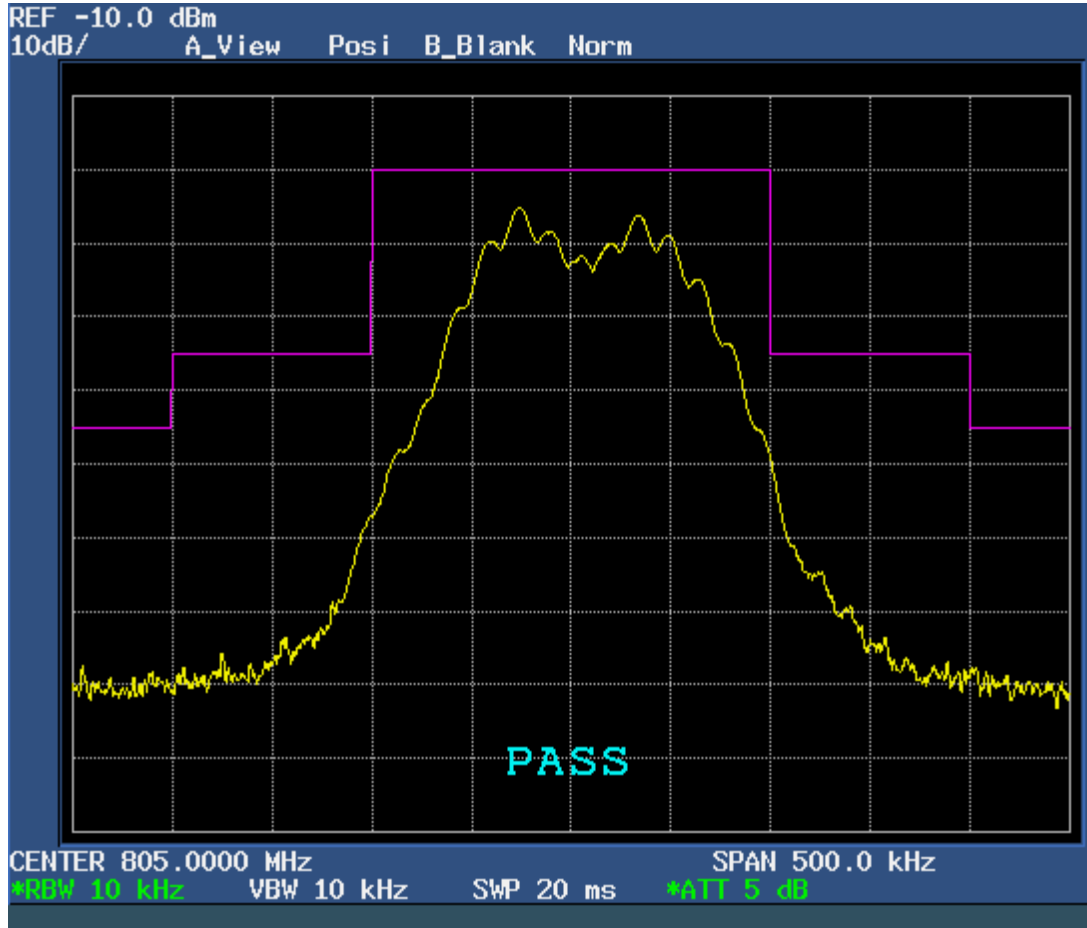


Audio test level: 350 mV / 2.1 V
DC supply voltage: 15 kHz

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

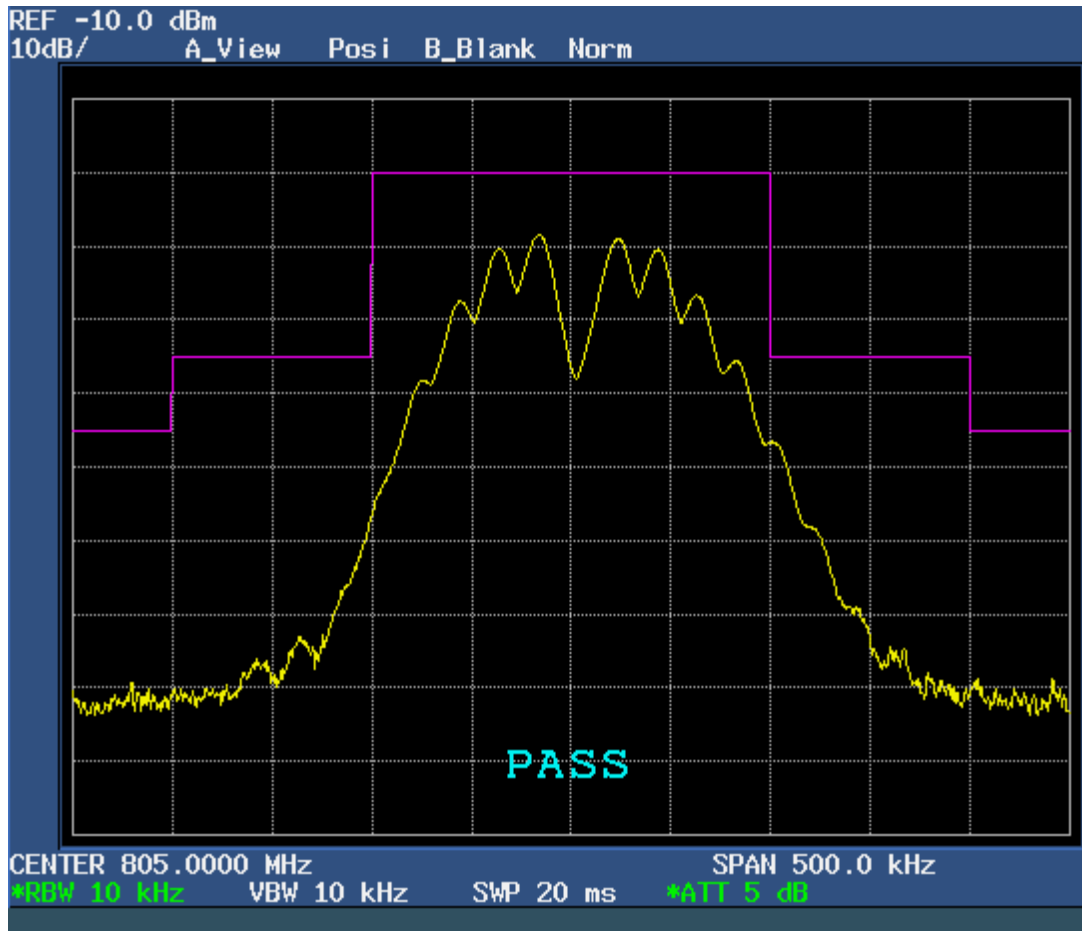


Audio test level: 350 mV / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

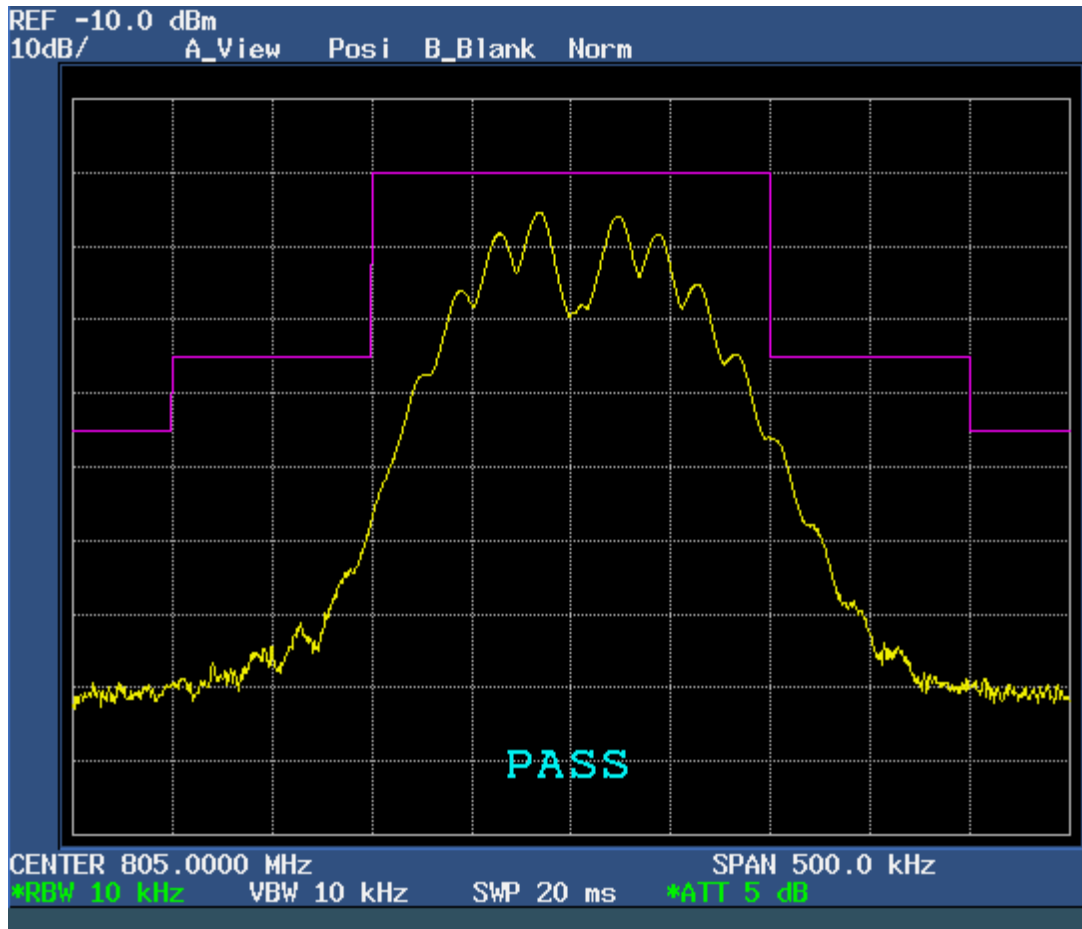


Audio test level: 350 mV / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band V - 805 MHz

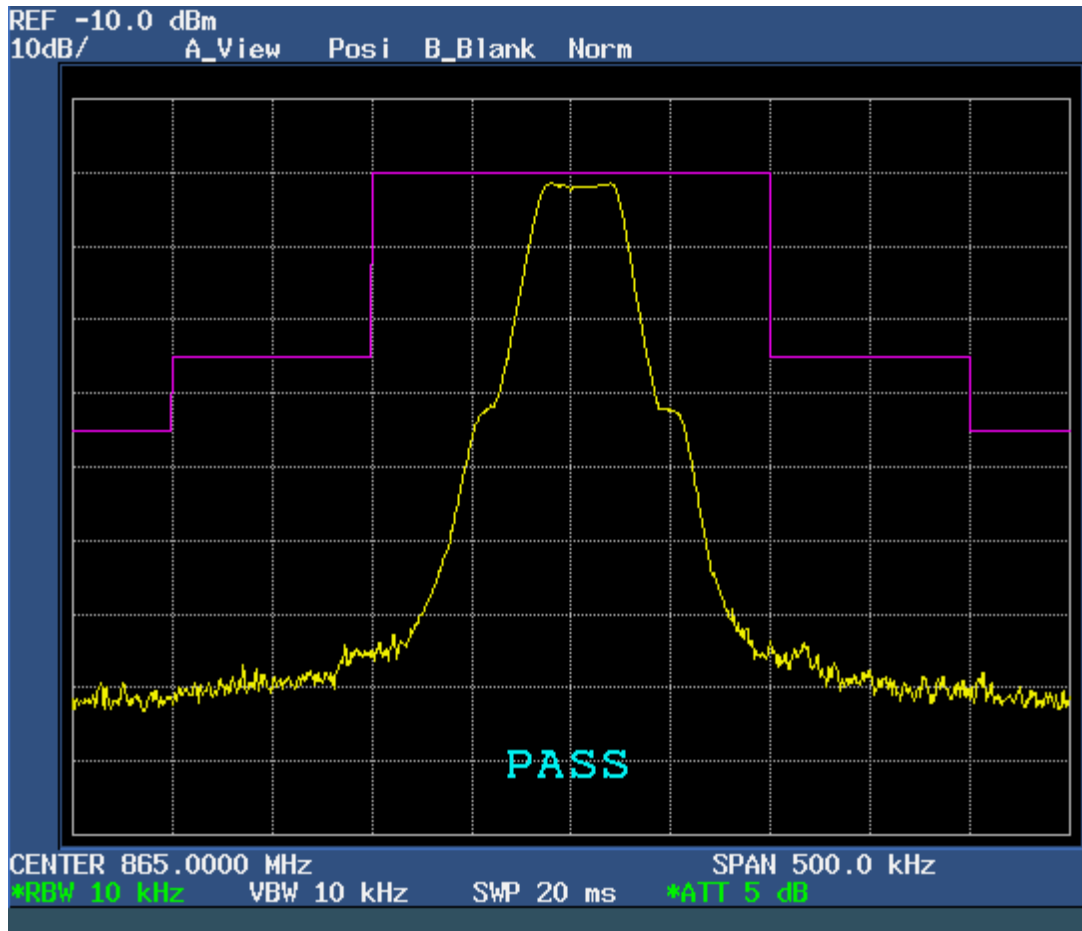


Audio test level: 350 mV / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

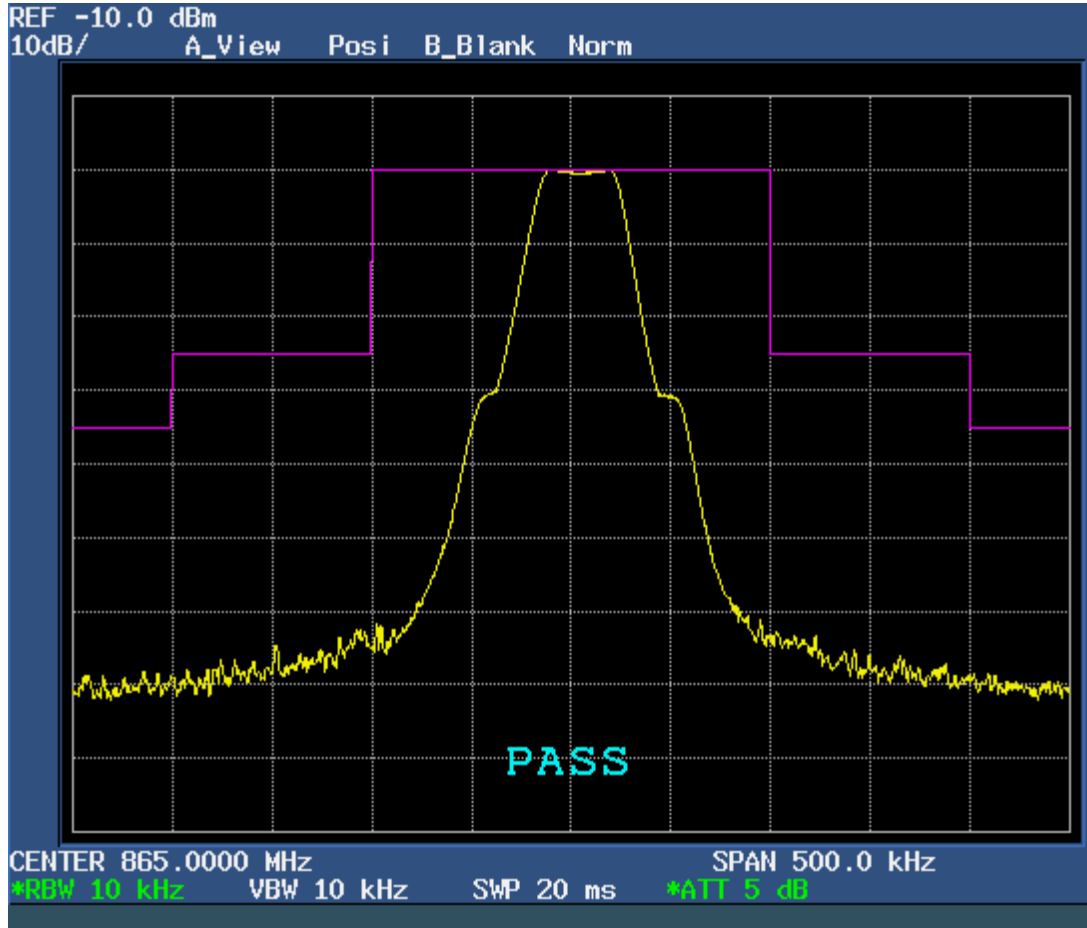


Audio test level: 101.5 dB μ V / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

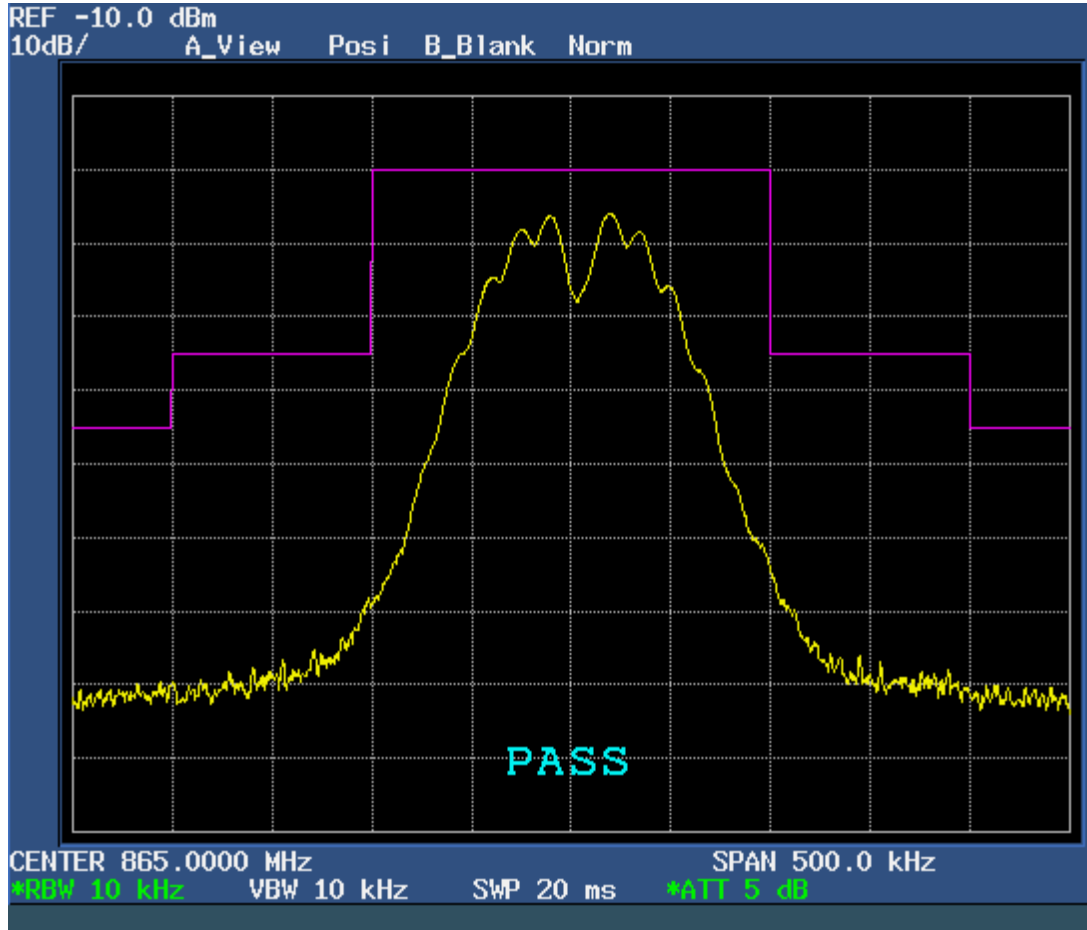


Audio test level: 101.5 dB μ V / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

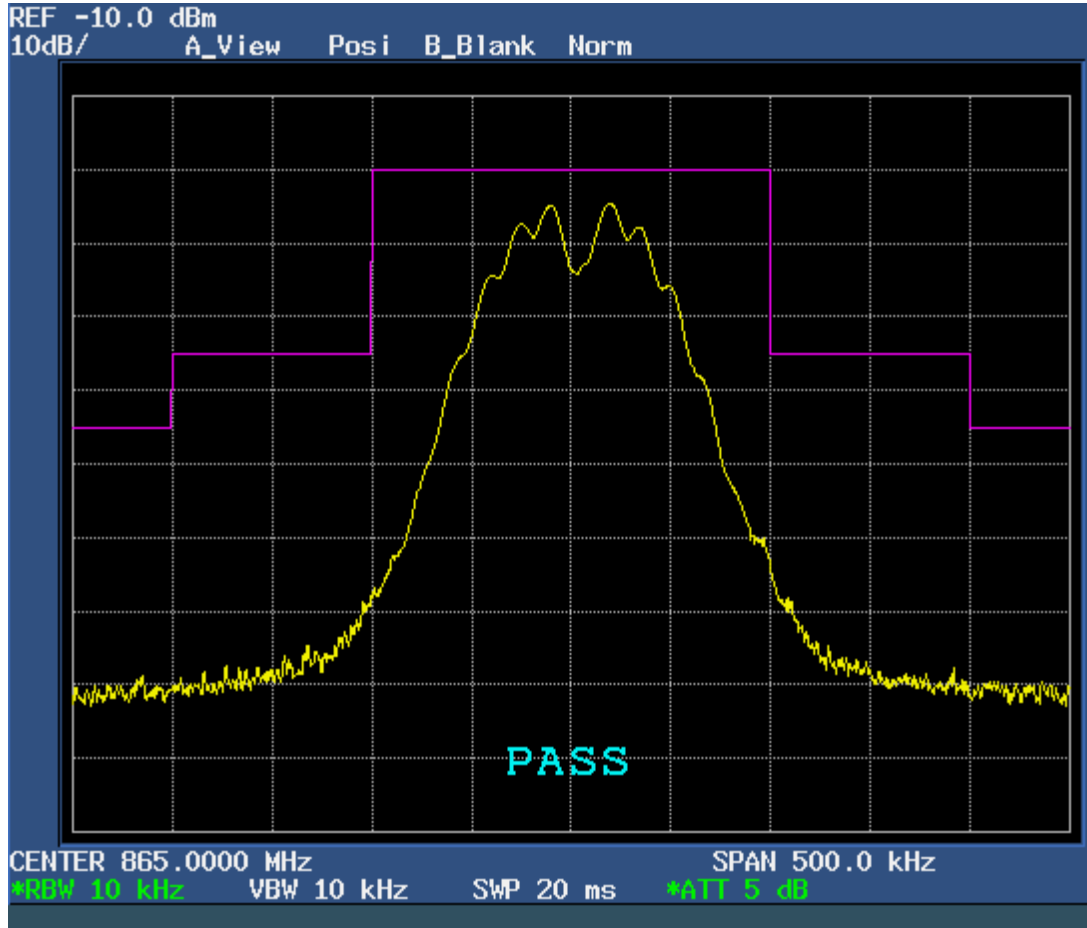


Audio test level: 101.5 dB μ V / 15 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

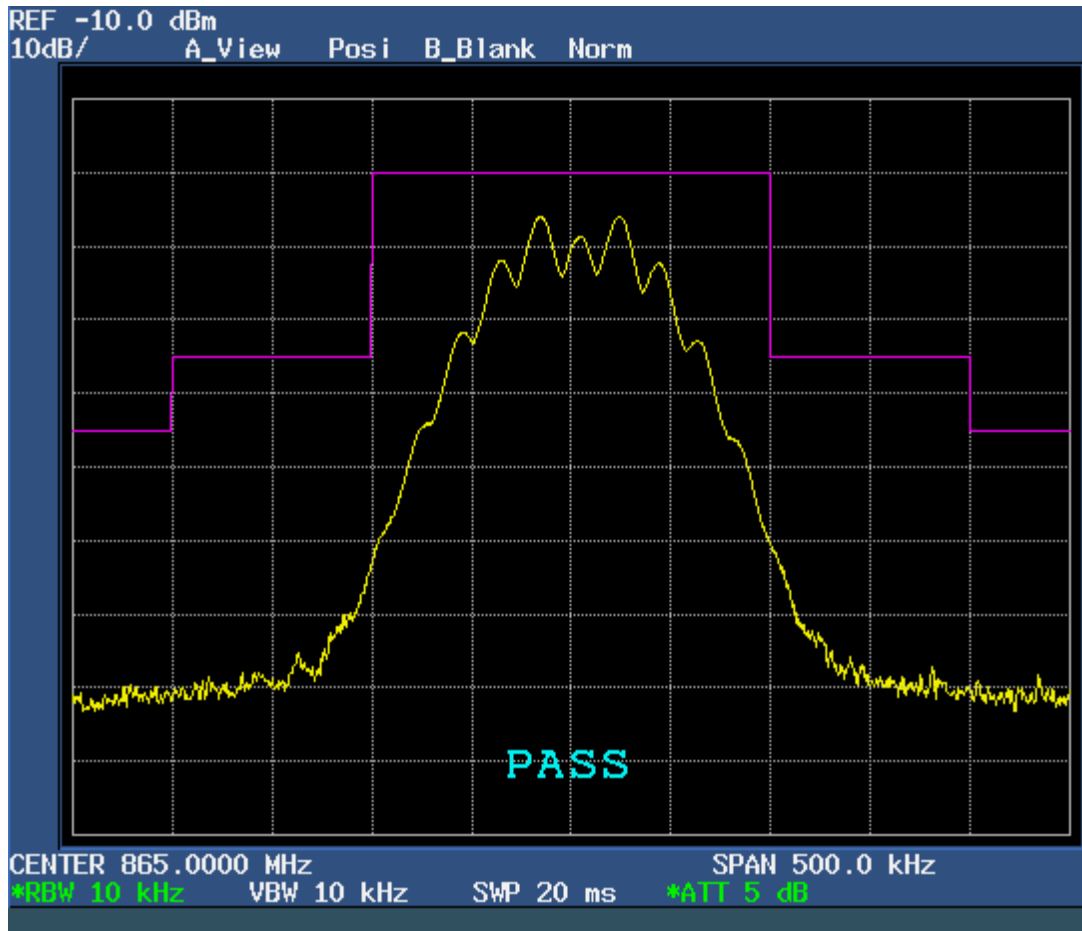


Audio test level: 101.5 dB μ V / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

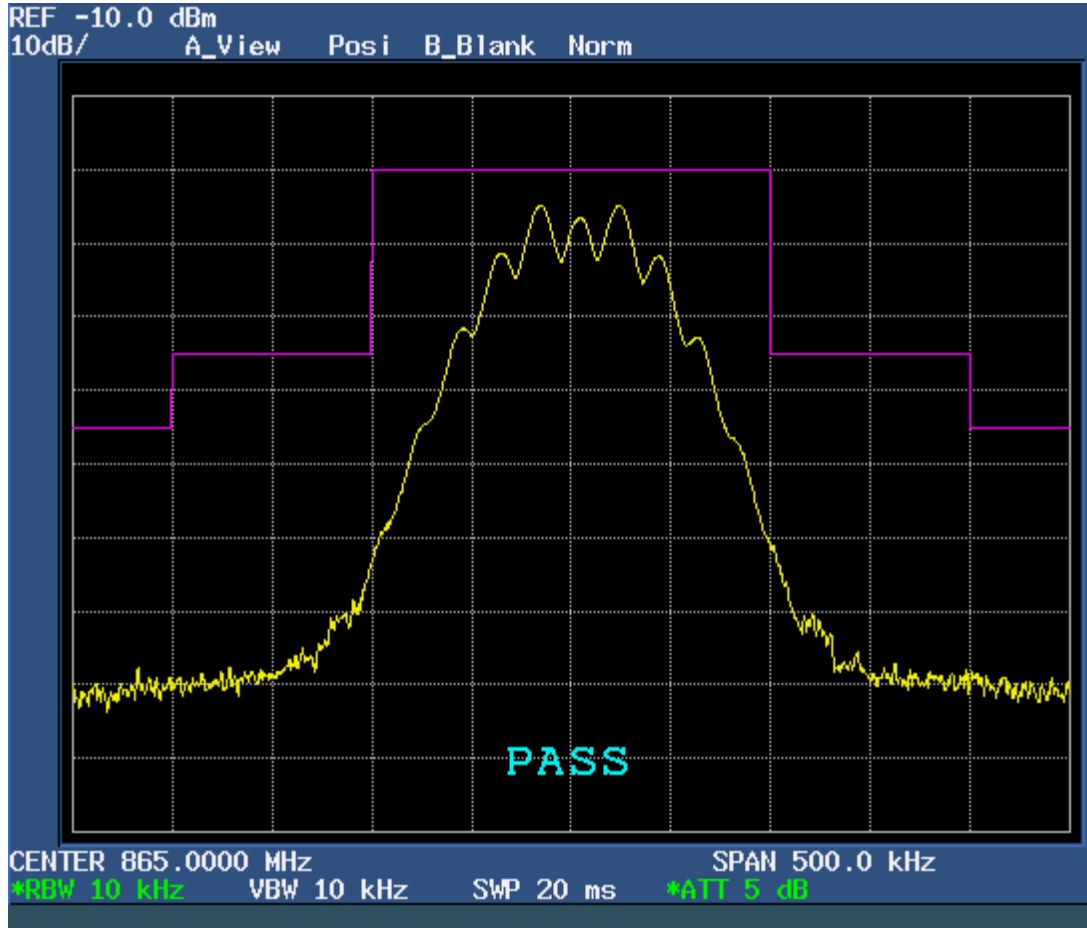


Audio test level: 101.5 dB μ V / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

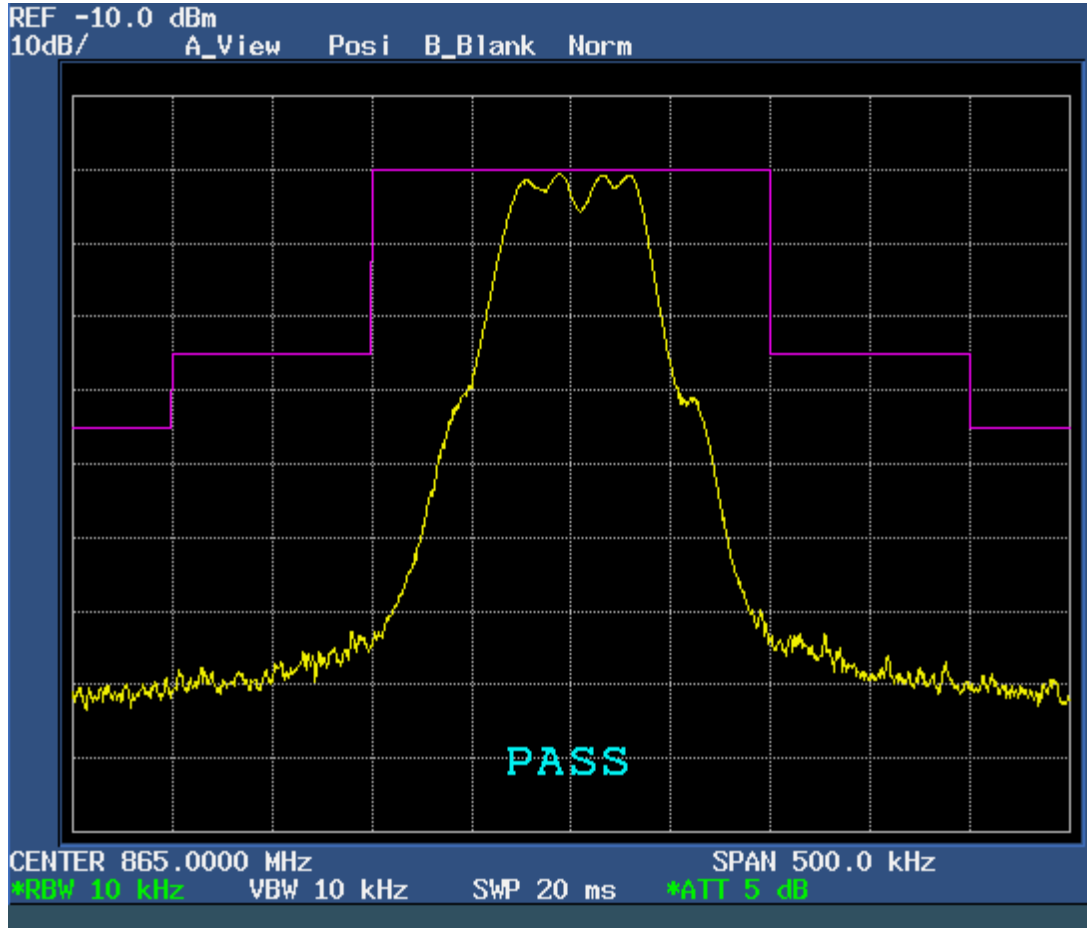


Audio test level: 101.5 dBμV / 20 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

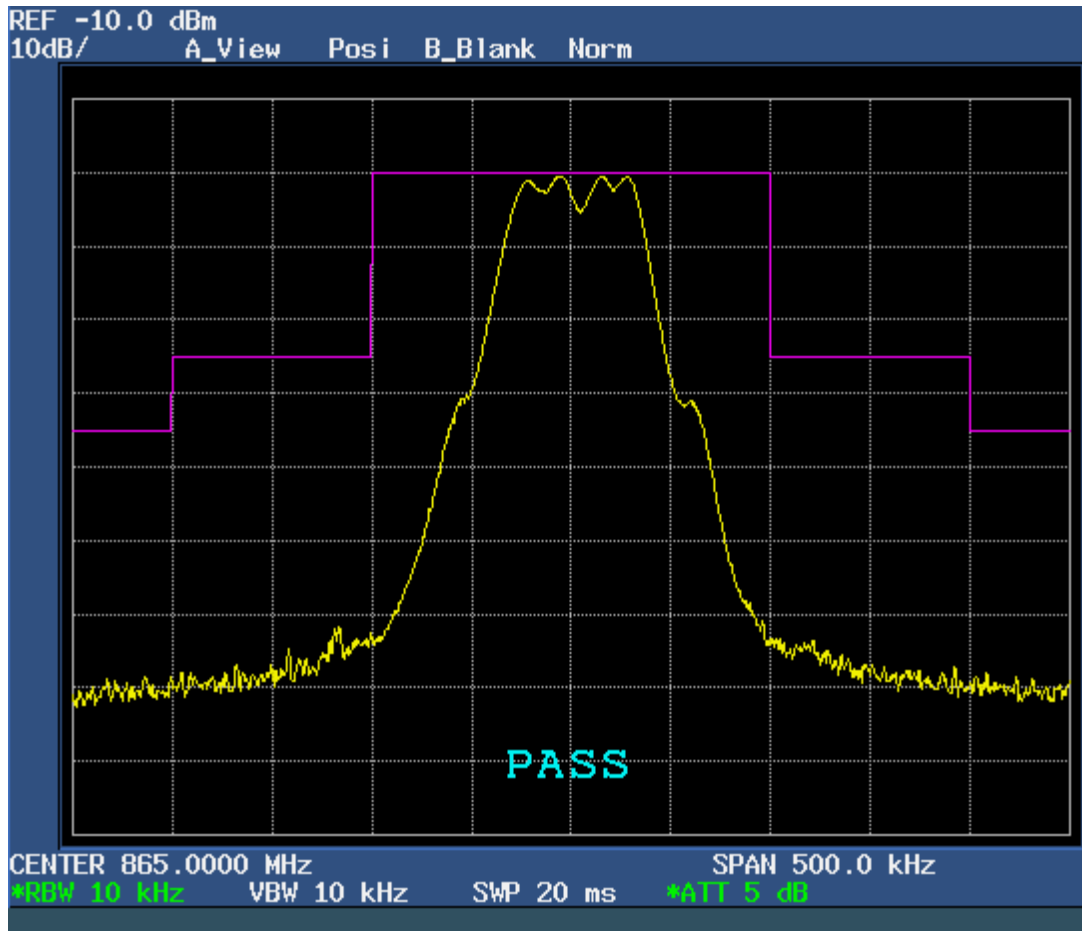


Audio test level: 350 mV / 1 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

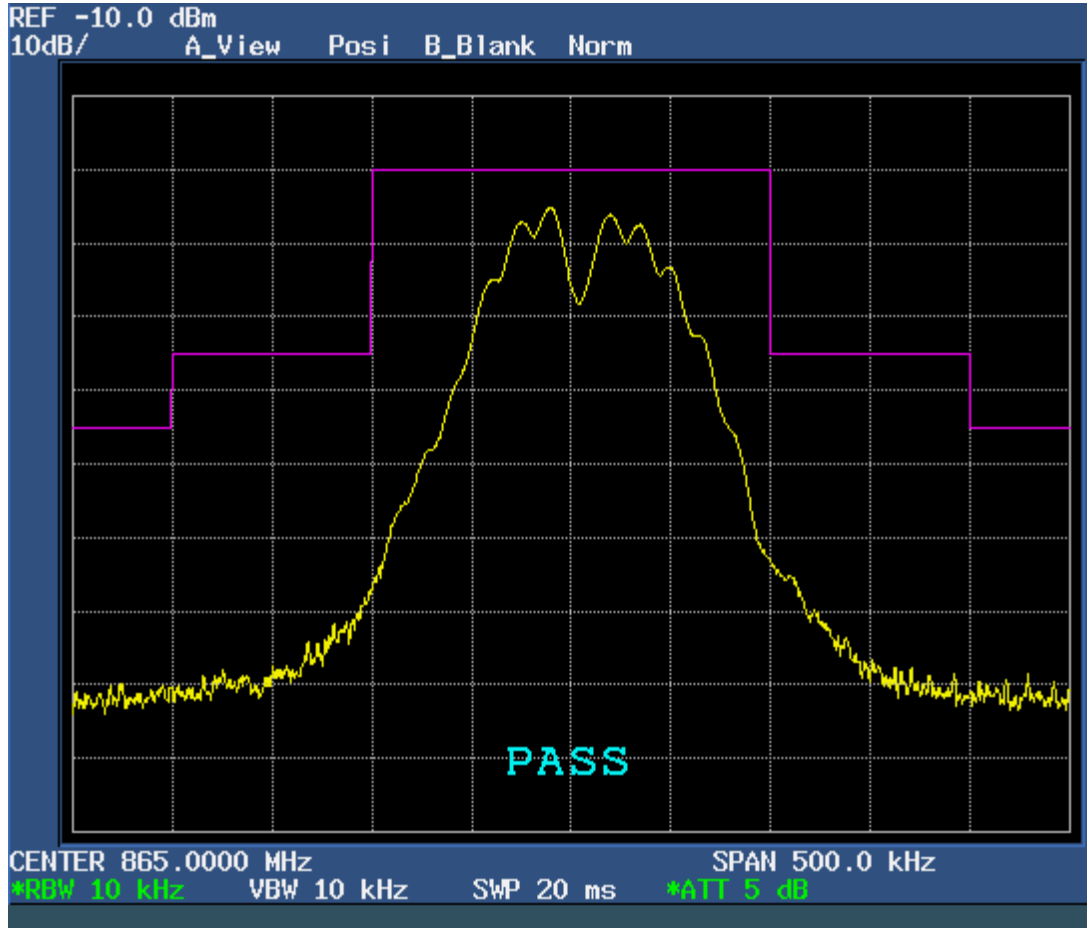


Audio test level: 350 mV / 1 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

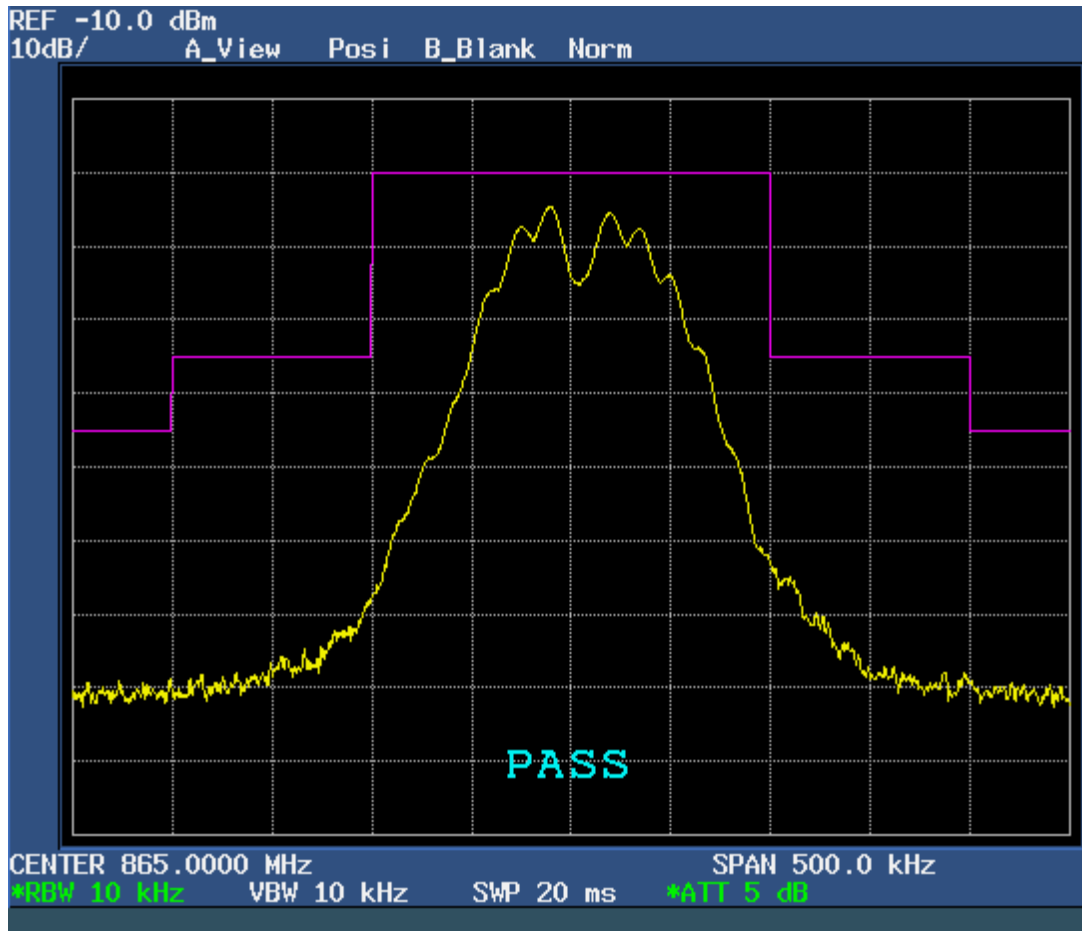


Audio test level: 350 mV / 2.1 V
DC supply voltage: 15 kHz

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz



Audio test level: 350 mV / 15 kHz
DC supply voltage: 3.2 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz

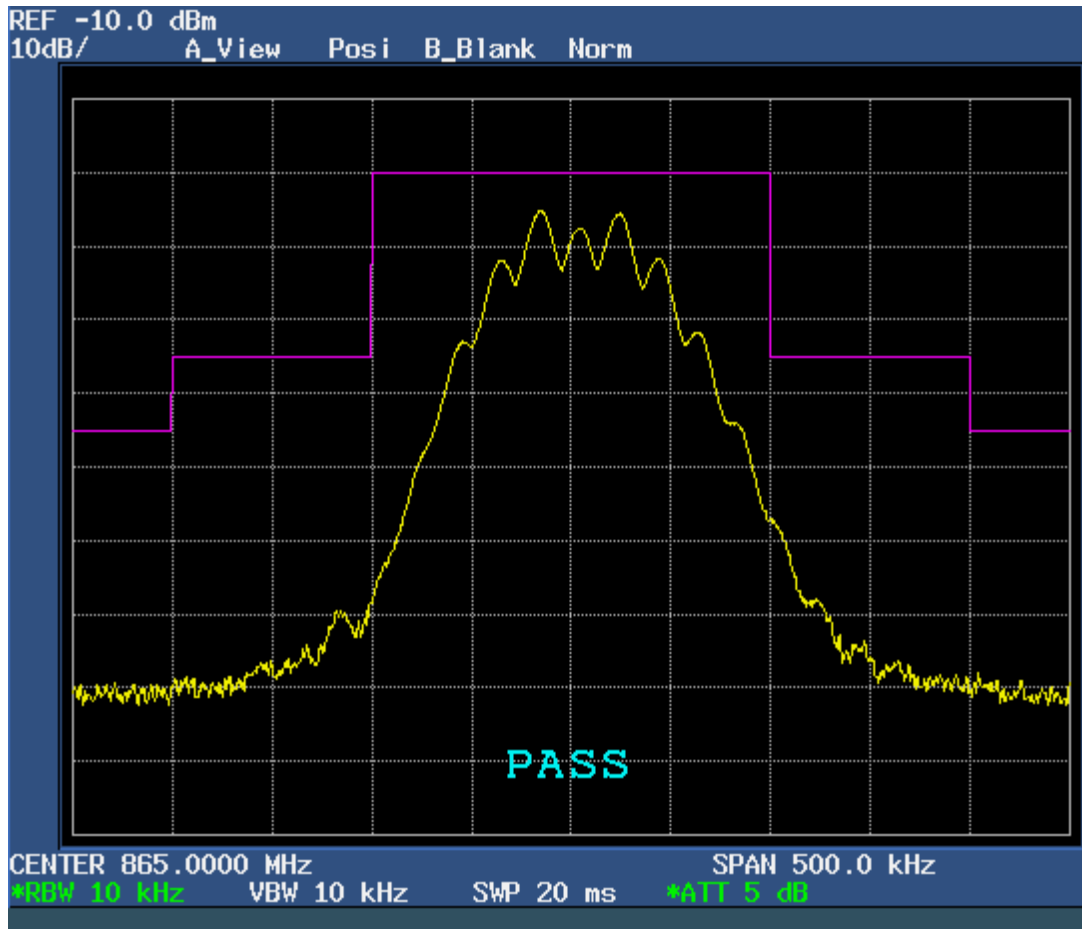


Audio test level: 350 mV / 20 kHz
DC supply voltage: 2.1 V

KEEPING THE REQUIREMENTS OF THE EMISSION MASK

HT4000

Band VI - 865 MHz



Audio test level: 350 mV / 20 kHz
DC supply voltage: 3.2 V

Attachment : B**List of Test Equipment**

All test instruments used, in addition to the test accessories, are calibrated and verified regularly.

Test Report No: T22891-00-05KJ
 Beginning of Testing: 04.Dezember 2002
 End of Testing: 10.März 2003

Test ID	Model Type	Kind of Equipment	Manufacturer	Equipment No.	Next cal. date
CPR2	Controller for Turntable	Controller	EMISYS Vertriebs GmbH	04-07/59-89-157	n.a.
	HCC	Controller Ant.-Mast	Rohde & Schwarz München	04-07/59-97-001	n.a.
	RG 214/U	RF Cable 2 m	Huber+Suhner	04-07/60-89-463	n.a.
	HF 7/8 inch	Antenna Cable 13 m	Huber+Suhner	04-07/60-99-001	n.a.
	HF 7/8 inch	Antenna Cable 20 m	Huber+Suhner	04-07/60-99-002	n.a.
	HF 7/8 inch	Antenna Cable 40 m	Huber+Suhner	04-07/60-99-003	n.a.
	KR - 200	Coax Antenna Switch	Rosenberger HF-Technik	04-07/60-99-004	n.a.
	VULB - 9165	Super Broadband Antenn	Schwarzbeck Mess-Elektronik	04-07/62-00-001	19.11.03
	ESVP	Test Receiver	Rohde & Schwarz München	04-07/63-89-008	13.01.04
	ESVP-EZM	Spectrum Monitor	Rohde & Schwarz München	04-07/74-86-016	n.a.
	Turntable 5 m	Turntable	EMISYS Vertriebs GmbH	04-07/92-88-155	n.a.
	Antenna Mast	Antenna Mast	Rohde & Schwarz München	04-07/92-97-001	n.a.
EM	HM-8142	Power Supply	Conrad Elektronik GmbH	04-07/49-99-002	n.a.
	8494B Attenuator / 11dB	Attenuator	HP Hewlett-Packard	04-07/60-01-007	n.a.
	NB-2000-BNC	RF Cable	SBF electronic	04-07/60-02-048	n.a.
	NM-214-0100-NM	Test Cable	MIKES PRODUCT SERVICE	04-07/60-99-058	n.a.
	UHF	Rod Antenna	Conrad Elektronik GmbH	04-07/62-01-012	n.a.
	CMS-54	Com. Receiver	Rohde & Schwarz München	04-07/63-96-062	07.03.03
	R 3162	Spectrum Analyser	Advantest	04-07/74-00-001	13.03.03
	DMM-830	TRMS Multimeter	Tektronix GmbH	04-10/34-97-003	20.01.04
FE	HM-8142	Power Supply	Conrad Elektronik GmbH	04-07/49-99-002	n.a.
	NB-2000-BNC	RF Cable	SBF electronic	04-07/60-02-048	n.a.
	UHF	Rod Antenna	Conrad Elektronik GmbH	04-07/62-01-012	n.a.
	CMS-54	Com. Receiver	Rohde & Schwarz München	04-07/63-96-062	07.03.03
	DMM-830	TRMS Multimeter	Tektronix GmbH	04-10/34-97-003	20.01.04
MLD	HM-8142	Power Supply	Conrad Elektronik GmbH	04-07/49-99-002	n.a.
	8494B Attenuator / 11dB	Attenuator	HP Hewlett-Packard	04-07/60-01-007	n.a.
	NB-2000-BNC	RF Cable	SBF electronic	04-07/60-02-048	n.a.
	NM-214-0100-NM	Test Cable	MIKES PRODUCT SERVICE	04-07/60-99-058	n.a.
	UHF	Rod Antenna	Conrad Elektronik GmbH	04-07/62-01-012	n.a.
	CMS-54	Com. Receiver	Rohde & Schwarz München	04-07/63-96-062	07.03.03
	R 3162	Spectrum Analyser	Advantest	04-07/74-00-001	13.03.03
	DMM-830	TRMS Multimeter	Tektronix GmbH	04-10/34-97-003	20.01.04

FCC ID: E9MHT4000

Test ID	Model Type	Kind of Equipment	Manufacturer	Equipment No.	Next cal. date
SER2	Controller for Turntable	Controller	EMISYS Vertriebs GmbH	04-07/59-89-157	n.a.
	HCC	Controller Ant.-Mast	Rohde & Schwarz München	04-07/59-97-001	n.a.
	RG 214/U	RF Cable 2 m	Huber+Suhner	04-07/60-89-463	n.a.
	HF 7/8 inch	Antenna Cable 13 m	Huber+Suhner	04-07/60-99-001	n.a.
	HF 7/8 inch	Antenna Cable 20 m	Huber+Suhner	04-07/60-99-002	n.a.
	HF 7/8 inch	Antenna Cable 40 m	Huber+Suhner	04-07/60-99-003	n.a.
	KR - 200	Coax Antenna Switch	Rosenberger HF-Technik	04-07/60-99-004	n.a.
	VULB - 9165	Super Broadband Antenn	Schwarzbeck Mess-Elektronik	04-07/62-00-001	19.11.03
	ESVP	Test Receiver	Rohde & Schwarz München	04-07/63-89-008	13.01.04
	ESVP-EZM	Spectrum Monitor	Rohde & Schwarz München	04-07/74-86-016	n.a.
	Turntable 5 m	Turntable	EMISYS Vertriebs GmbH	04-07/92-88-155	n.a.
	Antenna Mast	Antenna Mast	Rohde & Schwarz München	04-07/92-97-001	n.a.
SER3	12/15 Volt DC	Power Supply >1GHz	SBF electronic	04-07/49-02-002	n.a.
	MDCON-201	Mast/Turntable Controller	SBF electronic	04-07/59-01-001	n.a.
	Sucoflex 102-SMA/2000	RF Cable	Huber+Suhner	04-07/60-03-001	n.a.
	Sucoflex 102-SMA/3000	RF Cable	Huber+Suhner	04-07/60-03-002	n.a.
	WHJ1000/6000-10EE	High Pass Filter	Wavetek GmbH	04-07/60-98-042	n.a.
	Model 3115	Horn Antenna	EMCO Elektronik GmbH	04-07/62-96-458	n.a.
	AWT-4534	Microwave Amplifier	TransTech Hochfrequenztechni	04-07/66-90-217	n.a.
	AMF-4B-040130-25P	Microwave Amplifier	TransTech Hochfrequenztechni	04-07/66-97-001	n.a.
	FSEM 30	Spectrum Analyser	Rohde & Schwarz München	04-07/74-97-001	08.01.04
	Turntable 2 m	Turntable	EMISYS Vertriebs GmbH	04-07/92-89-160	n.a.

Attachment D: Constructional dataform for testing of radio equipment

Licence holder:	AKG Acoustics, U.S.		
Address:	914 Airpark Center Dr., Nashville, TN 37217, U.S.A.		
Manufacturer:	Vtech Communications Ltd		
Address:	Vtech Sciende Park, Xia Ling Bei Management Zone, Liabou, Dongguan Guangdong 523411		
Type:	HT4000		
Model:			
Serial-No.:		Protection class:	

Additional informations to the above named model:

Antenna: transmitter:	Type: dipole (integral)		
	Length/size: lamda/4		
receiver:	Type:		
	Length/size:		
Power supply of the transmitter: Type: 2 x AA size battery / accu pack	nominal voltage:		3.0 V
	lowest voltage:		2.1 V
	highest voltage:		3.2 V
	current consumption		0.125A @ 3.1 V
Power supply of the receiver: Type:	nominal voltage:		V
	cuurrent consumption		A

Ancillary equipment:

Description:	Accu pack	Type:	BP4000	Serial-no.:	
Description:	Charger for accu	Type:	CU4000	Serial-no.:	
Description:	Microphone heads	Type:	D880WL1, D3700WL1, D3800WL1 C5900WL1, C535WL1, C900WL1	Serial-no.:	

Extreme temperature range in which the approval test should be performed:

☐ Category I: General (-20°C to +55°C)

☒ Category II: Portable (-10°C to +55°C)

☐ Category III: Equipment for normal indoor use (0°C to +55°C)

Connectable cables:

Name of the cable	Digital	Length/m	shielded
	☐ yes ☐ no		☐ yes ☐ no
	☐ yes ☐ no		☐ yes ☐ no
	☐ yes ☐ no		☐ yes ☐ no
	☐ yes ☐ no		☐ yes ☐ no
	☐ yes ☐ no		☐ yes ☐ no

Attachment D: Constructional dataform for testing of radio equipment

Type designation: HT4000			
Name and type designation of individual units comprising the radio equipment:			
Type of equipment:			
☐ Radiotelephone equipment	☐ Remote-control equipment	☐ Radiomaritime equipment	☐ LPD
☐ One-way radiotelephone equipment	☐ Inductive loop system	☐ Inland waterways equipment	☐ RLAN
☐ Personal paging system	☐ Radio-relay system	☐ Radionavigation equipm.	☒ Wireless Microphone
☐ Satellite earth station	☐ CB radiotelephone equipment	☐ Antenna	☐
☐ Data transmission equipment	☐ Movement detector	☐ Aeronautical equipment	☐
Technical characteristics:			
	Transmitter-receiver	Transmitter	Receiver
Frequency range		650...865 MHz	
Maximum no. of channels		1200	
Channel spacing		25kHz	
Class of emission (type of modulation)		200KF3E	
Maximum RF output power		50mW	
Maximum effective radiated power (ERP)		50mW	
Output power variable		no	
Channel switching frequency range		Up to 30MHz	
Method of frequency generation	☒ Synthesizer ☐ Crystal ☐ Other		
Frequency generation TX	PLL synthesizer		
Frequency generation RX			
IF	1st IF	2nd IF	3rd IF
Integral selective calling			
Audio-frequency interface level at external data socket	350mV @ 20kHz deviation		
Modes of operation	☐ Duplex mode ☐ Semi-duplex mode ☒ Simplex mode		
Power source	☐ Mains ☐ Vehicle-regulated ☒ Integral		
Antenna socket	☐ BNC ☐ TNC ☐ N ☐ M ☐ UHF ☐ Adapter ☒ None ☐		
Test specifications: FCC Part 74			

Attachment D: Constructional dataform for testing of radio equipment

Declarations:

- We declare that the above information are correct and the named model was supplied with the maximum configuration to the accredited test laboratory.

Nashville, Tennessee date 11/18/02 Douglas W. McCallum
place of issue Seal and signature of applicant