



EMISSION -- TESTREPORT

Testreport file no. : T 20725-1-04KG Date of issue : July 16, 2001

Model / Type No. : TXF 315P3

Type : Transmitter 315 MHz

Applicant : Delphi Automotive Systems Deutschland GmbH

Manufacturer : Delphi Automotive Systems Deutschland GmbH

Licence holder : Delphi Automotive Systems Deutschland GmbH

Address : Wiehlpuhl 4

D-51766 Engelskirchen, Germany

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

POSITIVE

This testreport with appendix consists of 28 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.

DIRECTORY**Page****A) Documentation**

Directory	<u>2</u>
Test regulations	<u>3</u>
General information	<u>4-5</u>
Discovery of worst case condition	<u>6</u>
Equipment under Test	<u>15</u>
Summary	<u>16</u>

B) Testdata

Conducted emissions 10/150 kHz - 30 MHz	<u>7</u>
Spurious emissions (magnetic field) 10 kHz - 30 MHz	<u>8-9</u>
Spurious emissions (electric field) 30 MHz - 1000 MHz	<u>10</u>
Spurious emissions (electric field) 1 GHz - 18 GHz	<u>11-12</u>
Radiated power of the fundamental wave	<u>13</u>
Conducted power of the fundamental wave measured on the antenna terminals	<u>14</u>

Attachment

A) Testdata /Bandwidth plots	<u>A1-A3</u>
B) List of Test Equipment	<u>B1</u>
C) Photos of the test setup	<u>C1-C2</u>
D) Technical description of the test sample (e.g.CDF, Declaration)	<u>D1-D3</u>
E) Photos of the EuT	<u>E1-E3</u>
F) Measurement Protocol for FCC, VCCI and AUSTEL	<u>--</u>

TEST REGULATIONS

The tests were performed according to following regulations :

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

- | | | |
|--------------------------------|--------------------------------------|-------------|
| 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 |
| o - Part 15 Subpart C (15.209) | | |
| ■ - Part 15 Subpart C (15.231) | | |

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 : Battery Unom = 3 V DC

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 $\pm 4\text{dB}$. 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)

Transmitter of "Keyless Entry System" (for automobiles).

Number of received/tested samples: 2 / 2

Serial Number: Prototype

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 RF transmitter TXF 315P3 is designed for the operation on the fixed transmitter frequency range of approx. 315 MHz $\pm$ 100 kHz.

To find out the worst case conditions for the complete measurement the following tests have been performed:

- Measurement of the radiated fieldstrength of the operating frequency measured in permanent operation mode in the specified channel. This measurement have been performed in order to find out the maximum transmitted fieldstrength of the RF transmitter.
- Measurement of the radiated spurious emissions measured in permanent operation mode in the specified channel. This measurement have been performed in order to find out the maximum spurious emissions of the RF transmitter.

Based on this testresults, the measurements have been performed completely on the specified channel. This testresults are documented in the following sections of the testreport.

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

■ - Test not applicable

Testlocation :

- 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

For TEST EQUIPMENT USED please refer to ATTACHMENT B: _____

Description of Measurement

The final level, expressed in dBμV, 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 dBμV and μV, 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 50Ω/50 μH (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: NOT APPLICABLE

SPURIOUS EMISSION

Spurious emissions from the EUT are measured in the frequency range of 9 kHz to 30 MHz using a tuned receiver and a shielded loop antenna. The antenna was positioned 3, 10 or 30 meters horizontally from the EUT. Measurements have been made in all three orthogonal axes and the shielded loop antenna was rotated to locate the maximum of the emissions.

Spurious emissions from the EUT are measured in the frequency range of 30 MHz 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) 9 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 B: _____

Description of Measurement

The final level, expressed in dB μ V/m, is arrived at by taking the reading from the EMI receiver (Level dB μ V) 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.

The resolution bandwidth during the measurement is as follows:

9 kHz - 150 kHz: ResBW: 200 Hz

150 kHz - 30 MHz: ResBW: 10 kHz

Example:

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

Testresult in detail:

Frequency [MHz]	L: PK [dBµV]	L: AV [dBµV]	L: QP [dBµV]	Correct. [dB]	L: PK [dBµV/m]	L: AV [dBµV/m]	L: QP [dBµV/m]	Limit [dBµV/m]

The requirements are

0 - MET

0 - NOT MET

Min. limit margin

_____ dB

_____ MHz

Max. limit exceeding

_____ dB

_____ 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 B: SER2**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

Frequency [MHz]	L: PK [dBµV]	L: AV [dBµV]	L: QP [dBµV]	Correct. [dB]	L: PK [dBµV/m]	L: AV [dBµV/m]	L: QP [dBµV/m]	Limit [dBµV/m]
629.99	11.8	4.5	11.5	27.9	39.7	32.4	39.4	55.6
944.99	9.5	-1.8	5.3	35.3	44.8	33.5	40.6	55.6

Testresult

The requirements are

■ - MET

o - NOT MET

Min. limit margin >5 dB 30-1000 MHz

Max. limit exceeding _____ dB _____ MHz

Remarks: The limits are kept.

SPURIOUS EMISSION 1 GHz - 18 GHz

■ - Test not applicable

Testlocation :

- 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 B:

SER3**Description of Measurement**

The final level, expressed in dB μ V/m, is arrived by taking the reading from the Spectrumanalyzer in dB μ V and adding the correction factors of the test setup incl. cables.

Example of the correction value at 1.8 GHz

Level reading at 1.8 GHz	Correction EMC0 3115	correction Amplifier AWT 4534 + cable	Correction factor (summarized)	corrected level
56 dB μ V	+27.3 dB	-41.2 dB	-13.9 dB	42.1 dB μ V/m

Testresult in detail:

Frequency [MHz]	L: PK [dB μ V]	L: AV [dB μ V]	L: QP [dB μ V]	Correct. [dB]	L: PK [dB μ V/m]	L: AV [dB μ V/m]	L: QP [dB μ V/m]	Limit [dB μ V/m]
1258.5	57.7	48.3	-	-15.5	42.2	32.8	-	55.6
1577.2	51.4	40.4	-	-14.9	36.5	25.5	-	54.0
1889.8	52.0	41.3	-	-12.9	39.1	28.4	-	55.6
2208.4	51.8	41.9	-	-11.2	40.6	30.7	-	54.0
2521.0	51.7	46.7	-	-10.6	41.1	36.1	-	55.6

Testresult

The requirements are

■ - MET

0 - NOT MET

Min. limit margin

>5 dB

1-3.15 GHz

Max. limit exceeding

_____ dB

_____ GHz

Remarks: The limits are met.

The measurement was performed up to the 10th harmonic (3150 MHz)

FIELD STRENGTH OF THE FUNDAMENTAL WAVE

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 B: 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)
315	45	+	22.5	=	67.5	-	74.3	=	-6.8

Testresult in detail:

Frequency [MHz]	L: PK [dBµV]	L: AV [dBµV]	L: QP [dBµV]	Correct. [dB]	L: PK [dBµV/m]	L: AV [dBµV/m]	L: QP [dBµV/m]	Limit [dBµV/m]
314.99	53.6	45.0	53.3	20.3	73.9	65.3	73.6	75.6

Testresult

The requirements are

■ - MET

o - NOT MET

Min. limit margin

2.0 dB314.99 MHz

Max. limit exceeding

_____ dB

_____ MHz

Remarks: The limits are kept.

CONDUCTED POWER OF THE FUNDAMENTAL WAVE MEASURED
ON THE ANTENNA TERMINALS

■ - Test not applicable

Testlocation :

- 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 B: _____

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

The requirements are

0 - MET

0 - NOT MET

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								

Remarks: NOT APPLICABLE

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 in the frequency range of 315 MHz $\pm$ 100 kHz. _____
- ☐ - _____
- ☐ - _____

Configuration of the equipment under test:

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
 - ☐ - _____
 - ☐ - _____

S U M M A R Y

GENERAL REMARKS:

The product TXF 315P3 has been tested on the following frequency:
TX-Mode: Frequency 315 MHz

The unit measurements met also the bandwidth requirements.

FINAL JUDGEMENT:

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

■ - met.

○ - not met.

The equipment under test

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

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

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

Testing Start Date : July 13, 2001

Testing End Date : July 16, 2001

- MIKES BABT PRODUCT SERVICE GmbH -

Test-engineer


Günter Mikes
Dipl.-Ing.(FH)

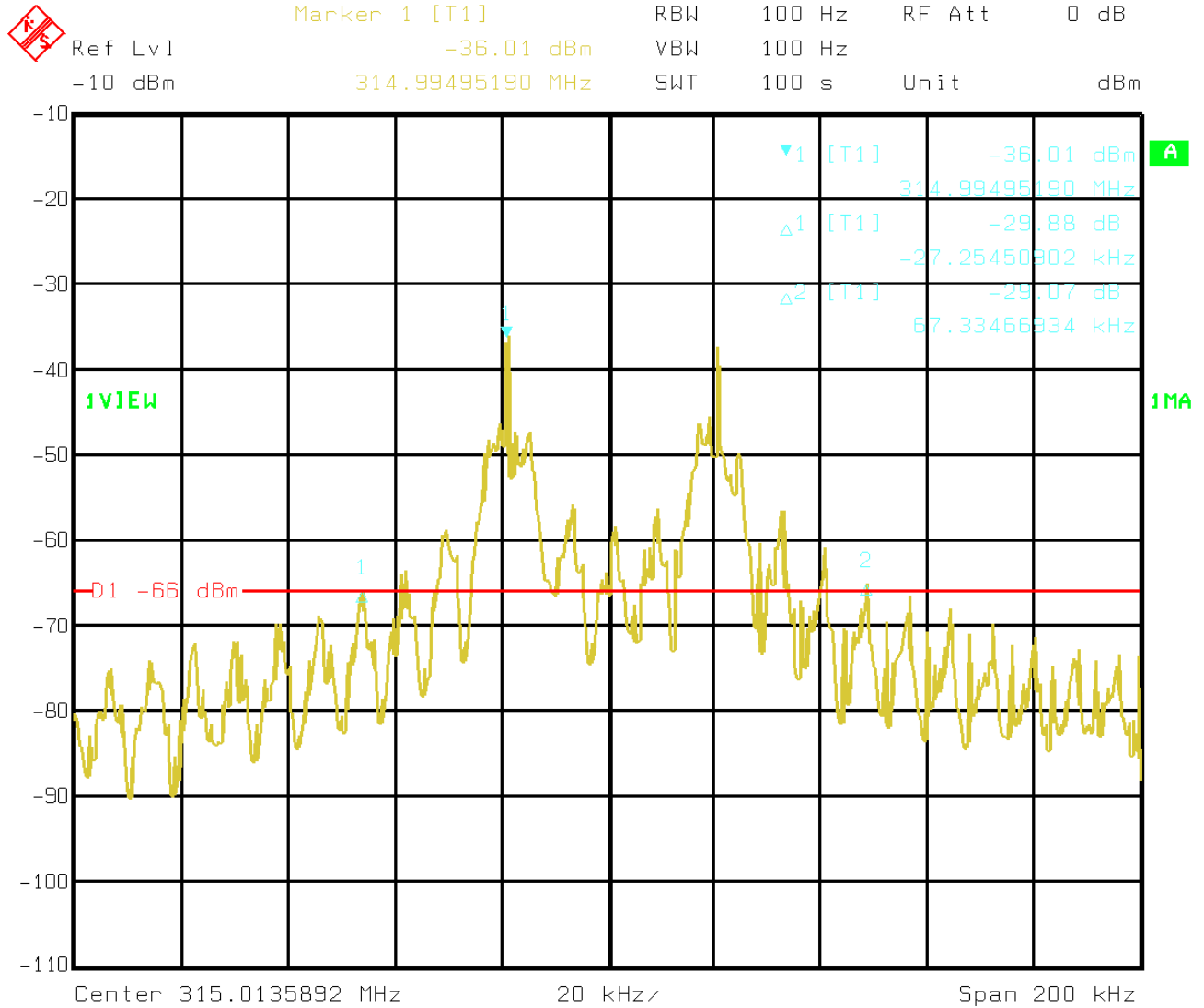

Klaus Gegenfurtner
Dipl.- Ing (FH)

Attachment A1

FCC ID: LTQTXF315P3

File No. T 20725-04 KG

Bandwidth plot



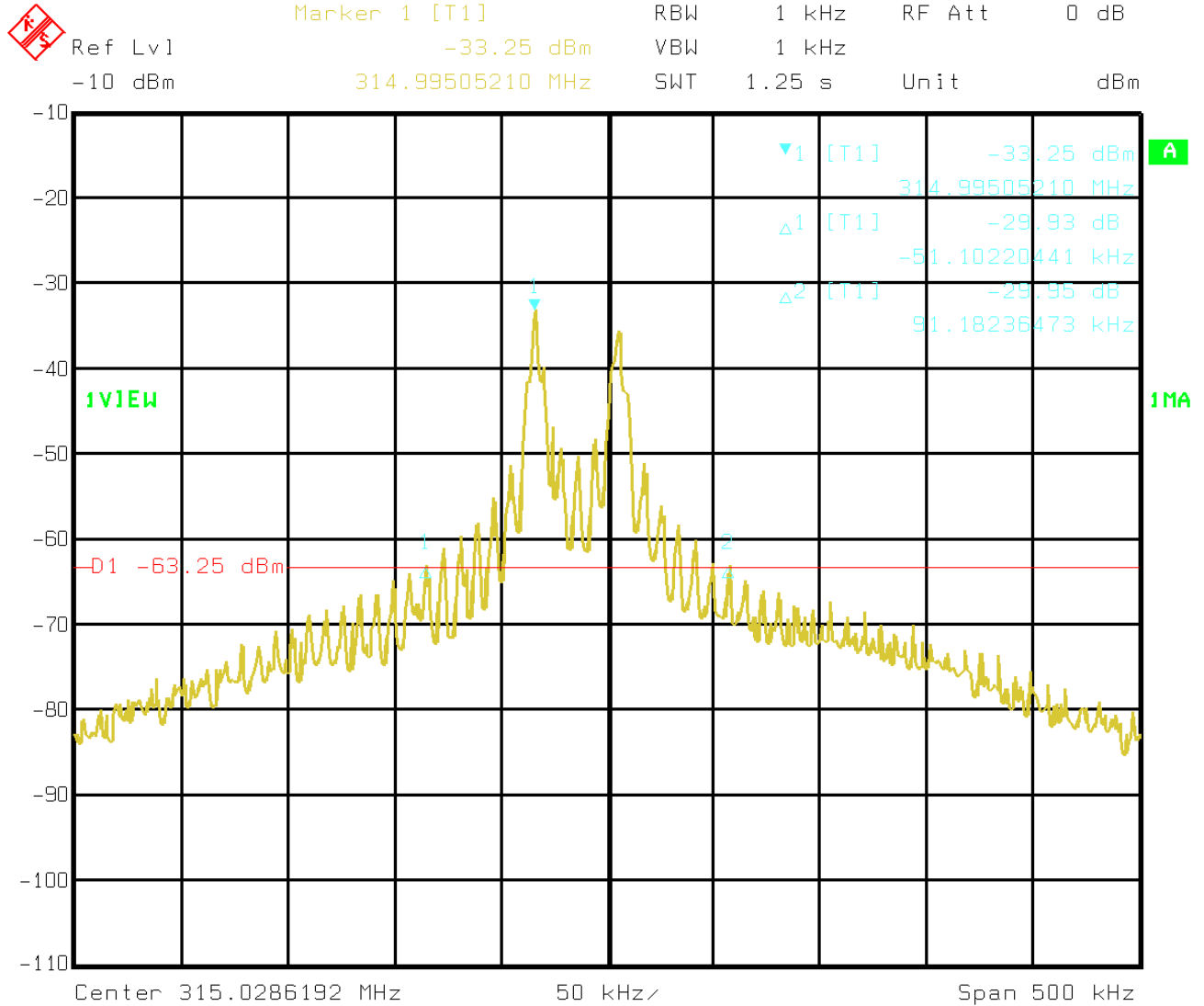
Title: TXF315P3
Comment A: Delphi
Bandwith = 94.6 kHz
Date: 12.JUN.2001 13:04:04

Attachment A2

FCC ID: LTQTXF315P3

File No. T 20725-04 KG

Bandwidth plot



Title: TXF315P3
Comment A: Delphi
Bandwith = 142,28kHz
Date: 12.JUN.2001 14:01:52

Attachment : B

List of Test Equipment

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

Test Report No: T 20725-1-04 KG
Beginning of Testing: 13-Juli-2001

Test ID	Model Type	Kind of Equipment	Manufacturer	Equipment No.
CPR2	HCC	Controller Ant.-Mast	Rohde & Schwarz München	04-07/59-97-001
	RG 214 U	Antenna cable 2 m	Huber+Suhner	04-07/60-89-463
	HF 7/8 inch	Antenna cable 13 m	Huber+Suhner	04-07/60-99-001
	HF 7/8 inch	Antenna cable 20 m	Huber+Suhner	04-07/60-99-002
	HF 7/8 inch	Antenna cable 40 m	Huber+Suhner	04-07/60-99-003
	KR - 200	Coax Antenna Switch	Rosenberger HF-Technik	04-07/60-99-004
	VULB - 9165	Super-Broadband-Anten	Schwarzbeck G.	04-07/62-00-001
	ESVP	Test Receiver	Rohde & Schwarz München	04-07/63-89-008
	ESVP-EZM	Spectrum Monitor	Rohde & Schwarz München	04-07/74-86-016
	Antennenmast	Antenna mast	Rohde & Schwarz München	04-07/92-97-001
SER2	HCC	Controller Ant.-Mast	Rohde & Schwarz München	04-07/59-97-001
	RG 214 U	Antenna cable 2 m	Huber+Suhner	04-07/60-89-463
	HF 7/8 inch	Antenna cable 13 m	Huber+Suhner	04-07/60-99-001
	HF 7/8 inch	Antenna cable 20 m	Huber+Suhner	04-07/60-99-002
	HF 7/8 inch	Antenna cable 40 m	Huber+Suhner	04-07/60-99-003
	KR - 200	Coax Antenna Switch	Rosenberger HF-Technik	04-07/60-99-004
	VULB - 9165	Super-Broadband-Anten	Schwarzbeck G.	04-07/62-00-001
	ESVP	Test Receiver	Rohde & Schwarz München	04-07/63-89-008
	ESVP-EZM	Spectrum Monitor	Rohde & Schwarz München	04-07/74-86-016
	Antennenmast	Antenna mast	Rohde & Schwarz München	04-07/92-97-001
SER3	Sucoflex 104, SMA	RF-cable 2 m	Huber+Suhner	04-07/60-97-485
	Sucoflex 104, N	RF-cable 3 m	Huber+Suhner	04-07/60-97-492
	Model 3115	Hornantenna	EMCO Elektronik GmbH	04-07/62-96-458
	AWT-4534	Microwave-Amplifier	TransTech Hochfrequenztechn	04-07/66-90-217
	FSEM 30	Spectrum Analyser	Rohde & Schwarz München	04-07/74-97-001

CONSTRUCTIONAL DATAFORM FOR TESTING OF RADIO EQUIPMENT

Licence holder:	Delphi Automotive Systems Deutschland GmbH Body Body & Security Electronics		
Address:	Wiehlpuhl 4, D-51766 Engelskirchen		
Manufacturer:	see licence holder		
Address:	see licence holder		
Type:	Transmitter/Receiver of Keyless Entry System		
Model:	Transmitter TXF 315P3 / Receiver RXF 315P3		
Serial-No.:		Protection class:	

Additional informations to the above named model:

Antenna: transmitter: receiver: Power supply of the transmitter: Type:	Type: integrated Loop Length/size: about 20mm x 6mm Type: external 50 Ohm Length/size: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">Lithium Battery</td> <td style="width: 20%;">nominal voltage:</td> <td style="width: 20%; text-align: center;">3 V</td> <td style="width: 20%;"></td> </tr> <tr> <td></td> <td>lowest voltage:</td> <td style="text-align: center;">2.2 V</td> <td></td> </tr> <tr> <td></td> <td>highest voltage:</td> <td style="text-align: center;">3.3 V</td> <td></td> </tr> <tr> <td></td> <td>current consumption</td> <td style="text-align: center;">about 10 mA</td> <td></td> </tr> </table> Power supply of the receiver: Type: Car Battery <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"></td> <td style="width: 20%;">nominal voltage:</td> <td style="width: 20%; text-align: center;">12 V</td> <td style="width: 20%;"></td> </tr> <tr> <td></td> <td>current consumption</td> <td style="text-align: center;">n.a.</td> <td style="text-align: center;">A</td> </tr> </table>	Lithium Battery	nominal voltage:	3 V			lowest voltage:	2.2 V			highest voltage:	3.3 V			current consumption	about 10 mA			nominal voltage:	12 V			current consumption	n.a.	A
Lithium Battery	nominal voltage:	3 V																							
	lowest voltage:	2.2 V																							
	highest voltage:	3.3 V																							
	current consumption	about 10 mA																							
	nominal voltage:	12 V																							
	current consumption	n.a.	A																						

Ancillary equipment:

Description: _____	Type: _____	Serial-no.: _____
Description: _____	Type: _____	Serial-no.: _____
Description: _____	Type: _____	Serial-no.: _____

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

- Category I: General (-20°C to +55°C)
- O Category II: Portable (-10°C to +55°C)
- O Category III: Equipment for normal indoor use (0°C to +55°C)

Connectable cables:

Name of the cable	Digital	Length/m	shielded
1 / Power	O yes ☒ no	1,5 /m	O yes ☒ no
2 / GND	O yes ☒ no	1,5 /m	O yes ☒ no
	O yes O no		O yes O no
	O yes O no		O yes O no
	O yes O no		O yes O no

O If applicable, if necessary complete overleaf

Page D1

Type designation: Transmitter TXF 315 P3 Receiver RXF 315 P3			
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.	☐
☐ Satellite earth station	☐ CB radiotelephone equipment	☐ Antenna	☐
☐ Data transmission equipment	☐ Movement detector	☐ Aeronautical equipment	☐
Technical characteristics:			
	Transmitter-receiver	Transmitter	Receiver
Frequency range		315 MHz	315 MHz
Maximum no. of channels		1	1
Channel spacing		----	-----
Class of emission (type of modulation)		F1D	F1D
Maximum RF output power			
Maximum effective radiated power (ERP)		< 10 mW	
Output power variable			
Channel switching frequency range		1 Channel	1 Channel
Method of frequency generation	☐ Synthesizer	☒ Crystal	☐ Other
Frequency generation TX	1 Channel PLL		
Frequency generation RX	1 Channel PLL		
IF	1st IF 1 MHz	2nd IF n.a.	3rd IF n.a.
Integral selective calling	n.a.		
Audio-frequency interface level at external data socket	n.a.		
Modes of operation	☐ Duplex mode	☐ Semi-duplex mode	☒ Simplex mode
Power source	☐ Mains	☒ Vehicle-regulated	☒ Integral
Antenna socket	☒ BNC ☐ M ☒ None	☐ TNC ☐ UHF ☐	☐ N ☐ Adapter ☐
Test specifications: FCC 15.231 FCC 15 B			

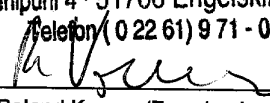
Applicant: Delphi Automotive Systems Deutschland GmbH Model-name: TXF 315 P3 RXF 315 P3

Declarations:

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

Wiehl, date 2001-06-22
place of issue

Delphi Automotive Systems Deutschland GmbH
Body & Security Electronics
Wiehlpuhl 4 · 51766 Engelskirchen
Telefon (0 22 61) 9 71 - 0


Roland Krause (Teamleader Homologation)

O If applicable, if necessary complete overleaf

Page D 3