



Annex D



This test report annex is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

| Test report annex authorized: | | | | | | |
|-------------------------------|--|--|--|--|--|--|
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Meheza Walla Lab Manager Radio Communications & EMC

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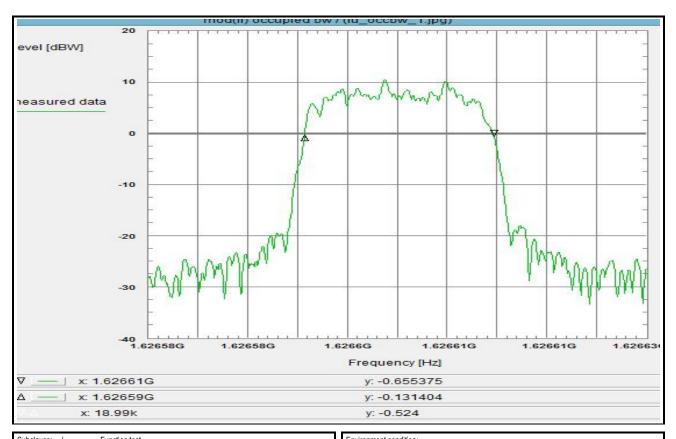
2 Measurement results, FCC Part 87 and FCC Part 25

This Chapter 2 consists of 51 pages including this page.

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Plot No. 1 (50)

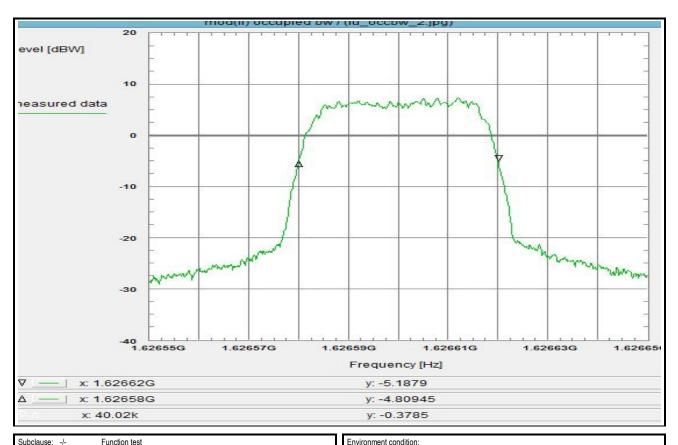


| Subclause: -/- | Function test | Environment condition: | | | |
|---------------------------|---|--|-------------------------|----------------------|-------|
| | Modulated rf-carrier at the lower edge of the band (fl) | Date & Time: | Thu 09/Nov/2017 | 7 16:29:36 | |
| | Determination of the 'occupied bandwidth' | Location: | CTC advanced (| GmbH, Laboratory RSC | C-Sat |
| | • | Temperature: | 22 | °C | |
| | | Humidity: | 55 | % | |
| Limit: | | Voltage: | 28 | Vdc | |
| The occupied bandwid | th, that is the frequency bandwidth such that, below | Ŭ | | | |
| | supper frequency limits, the mean powers radiated are | Setup of measurement e | equipment: | | |
| | f the total mean power radiated by a given emission. | Start frequency: | 1.626575 | GHz | |
| (see §2.1049). | , , , | Stop frequency: | 1.626625 | GHz | |
| This occupied bandwin | dth corresponds to the -20 dB-bandwidth. | Center frequency: Frequency span: Resolution-BW: Video-BW: | 1.6266 | GHz | |
| ' | , | Frequency span: | 50 | kHz | |
| | | Resolution-BW: | 1 | kHz | |
| | | Video-BW: | 3 | kHz | |
| | | Input attenuation: | 5 | dB | |
| Test results: | | Trace-Mode: | Max-Hold | | |
| see plot (an explicit tal | ble was not generated) | Detector-Mode: | Pos Peak | | |
| , | | | | | |
| Operating condition of | DUT: | Correction: | | | |
| operating condition 1, | | Directional coupler Coaxial cable (C218) DUT-Antenna (on-axis) Test antenna | + | 0.0 dB | |
| A200/A300/A350, fl, C | PSK, 21 kHz | Coaxial cable (C218) | + | 0.8 dB | |
| | | DUT-Antenna (on-axis) | + | 0.0 dBi | |
| Test setup: | | Test antenna | + | 0.0 dB | |
| see section 8.1: 1.2hg | l | BW correction factor (1k | -> 3k) + | 4.8 dB | |
| , | | Atten. between HPA and | d feedhorn + | 0.0 dB | |
| Test equipment: | | (U005) | + | 29.8 dB | |
| see annex 2: C218, R | 001, U005 | TOTAL CORRECTION: | + | 35.4 dB | |
| | | | | | |
| Remark: | | Remarks: | | | |
| | | Determination of the 'oci | cupied bandwidth' a | at fu: | |
| | | The measured value is a | about 19 kHz (delta | marker) | |
| | | Measurement with 3 kHz | z resolution filter and | d noise averaging. | |
| Test result: | Determination of the 'occupied bandwidth' | | | | |
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Plot No. 2 (50)

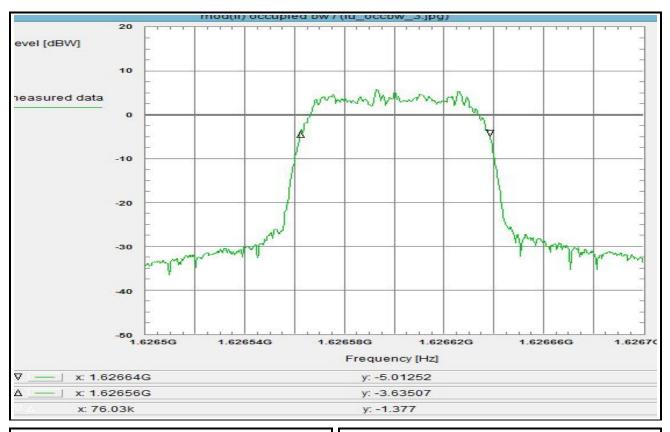


| Subclause: -/- Function test | Environment condition: |
|--|--|
| Modulated rf-carrier at the lower edge of the band (fl) | Date & Time: Thu 09/Nov/2017 17:14:22 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| l ' | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | 25 745 |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start frequency: 1.62655 GHz |
| | Stop frequency: 1.62665 GHz |
| (see §2.1049). | Stop frequency. 1.02005 GHZ |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Stop frequency: |
| | Frequency span: 100 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| p (p | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler + 0.0 dB |
| A200/A300/A350, fl, QPSK, 42 kHz | Oncetain: Once |
| 7200/7000/7000, ii, Qi OK, 42 Ki iz | DUT-Antenna (on-axis) + 0.0 dBi |
| Today | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor + 0.0 dB |
| | Atten. between HPA and feedhom + 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 30.6 dB |
| | |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fu: |
| | The measured value is about 40 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test result: Determination of the 'occupied bandwidth' | modes on one man on the roots and mode and mode at the roots and m |
| Test result: Determination of the 'occupied bandwidth' | |
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Plot No. 3 (50)

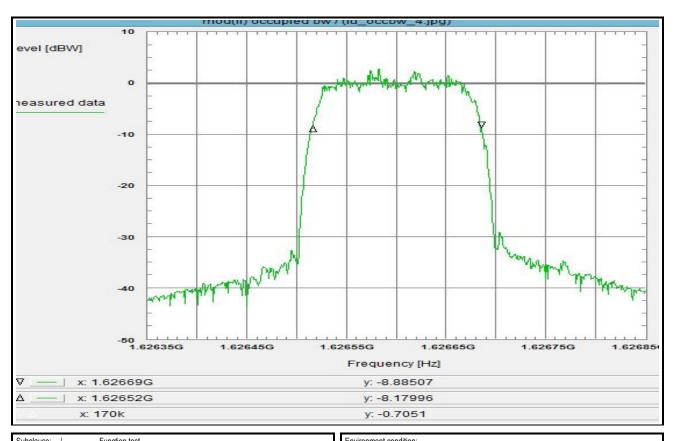


| Subclause: -/- Function test | Environment condition: |
|--|---|
| Modulated rf-carrier at the lower edge of the band (fl) | Date & Time: Thu 09/Nov/2017 17:33:10 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Humidity: 55 % |
| <u>Limit:</u> | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Chart francisco (1000 CI) |
| (see §2.1049). | Stop frequency: 1.6267 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Staff requency: |
| | Frequency span: 200 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler + 0.0 dB |
| A200/A300/A350, fl, QPSK, 84 kHz | Coaxial cable (C218) + 0.8 dB |
| Testestus | Directional coupler |
| Test setup: see section 8.1: 1.2hql | BW correction factor + 0.0 dB |
| see section 8.1: 1.2ngi | Atten. between HPA and feedhom + 0.0 dB |
| Test equipment: | |
| rest equipment. see annex 2: C218, R001, U005 | (U005) + 29.8 dB TOTAL CORRECTION: + 30.6 dB |
| See diffex 2. G210, N001, 0003 | TOTAL CORRECTION. + 30.0 db |
| Remark: | Remarks: |
| remark. | Determination of the 'occupied bandwidth' at fu: |
| | The measured value is about 76 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test result: Determination of the 'occupied bandwidth' | model on the control men and note another. |
| Test result. Determination of the occupied bandwidth | |
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Plot No. 4 (50)

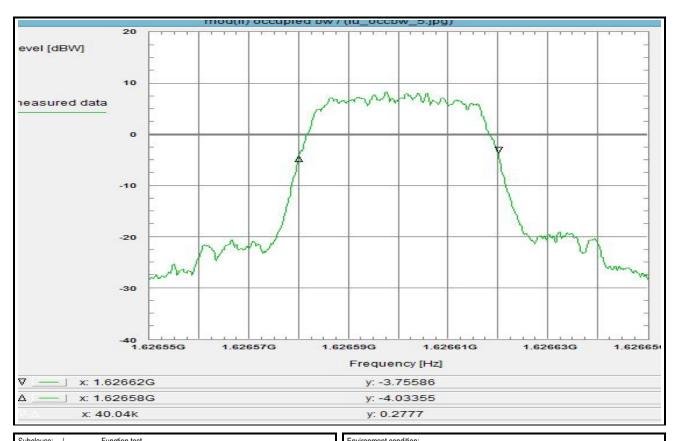


| Subclause: -/- Function test | Environment condition: |
|--|--|
| Modulated rf-carrier at the lower edge of the band (fl) | Date & Time: Thu 09/Nov/2017 17:51:59 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| ' | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | voluge. |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start frequency: 1.62635 GHz |
| (see §2.1049). | Stop frequency: 1.62685 GHz |
| | Stop frequency: 1.62685 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1.6266 GHz Frequency span: 500 kHz Resolution-BW: 3 kHz Video-BW: 10 kHz |
| | Frequency span: 500 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional country |
| A200/A300/A350, fl, QPSK, 189 kHz | Directional coupler |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor + 0.0 dB |
| 300 300tion 0.1. 1.2ngi | Atten. between HPA and feedhorn + 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| | TOTAL CORRECTION: + 30.6 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 30.6 dB |
| D I | B I |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fu: |
| | The measured value is about 170 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test result: Determination of the 'occupied bandwidth' | |
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Plot No. 5 (50)

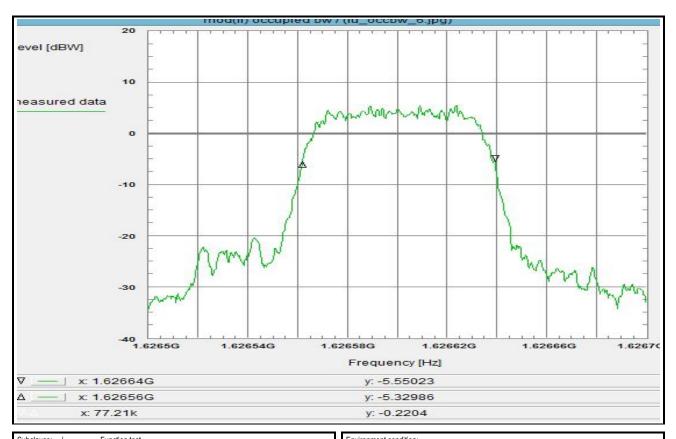


| Subclause: -/- Function test | Environment condition: |
|--|--|
| Modulated rf-carrier at the lower edge of the band (fl) | Date & Time: Thu 09/Nov/2017 18:09:04 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| · · | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start frequency: 1.62655 GHz |
| (see §2.1049). | Stop frequency: 1.62665 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1.6266 GHz |
| This cooupled bandwidth contesponds to the 20 db bandwidth. | Frequency span: 100 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Frequency span: 100 kHz Resolution-BW: 3 kHz Video-BW: 10 kHz Input attenuation: 5 dB Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| see plot (an explicit table was not generated) | Detector-wode. Pos Peak |
| Operating condition of DUT: | Correction: |
| | Direction of the second of the |
| operating condition 1, see subclause 1.5.2 | |
| A200/A300/A350, fl, 16QAM, 42 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | |
| see section 8.1: 1.2hgl | BW correction factor + 0.0 dB |
| | Atten. between HPA and feedhom + 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 30.6 dB |
| | |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fu: |
| | The measured value is about 40 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test result: Determination of the 'occupied bandwidth' | |
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Plot No. 6 (50)

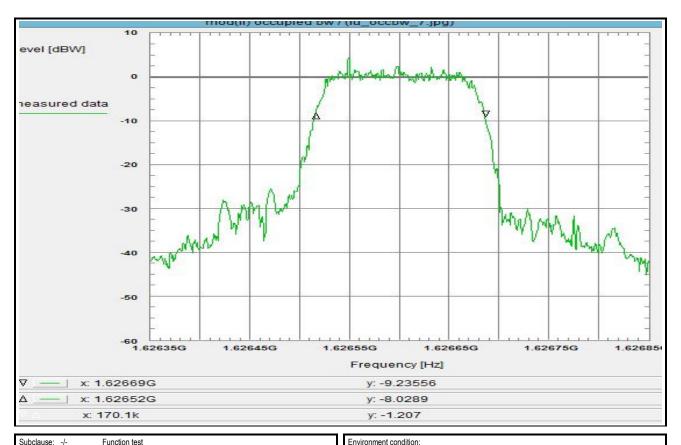


| Subclause: -/- | Function test | Environment condition: | | | |
|------------------------|---|--|-----------------------|--------------------------|--|
| | Modulated rf-carrier at the lower edge of the band (fl) | Date & Time: | Thu 09/Nov/2017 | 7 18:25:12 | |
| | Determination of the 'occupied bandwidth' | Location: | CTC advanced (| GmbH, Laboratory RSC-Sat | |
| | | Temperature: | 22 | | |
| 1 | | Humidity: | 55 | | |
| Limit: | | Voltage: | 28 | Vdc | |
| | of the that is the frequency bandwidth such that, below | | | | |
| | supper frequency limits, the mean powers radiated are | Setup of measurement e | auipment: | | |
| | f the total mean power radiated by a given emission. | Start frequency: | 1.6265 | GHz | |
| (see §2.1049). | γ τ τ τ τ τ τ τ τ τ τ τ τ τ τ τ τ τ τ τ | Stop frequency: | 1 6267 | | |
| | dth corresponds to the -20 dB-bandwidth. | Center frequency: Frequency span: Resolution-BW: Video-BW: | 1.6266 | | |
| | | Frequency span: | 200 | | |
| | | Resolution-BW: | 3 | kHz | |
| | | Video-BW: | 10 | kHz | |
| | | Input attenuation: | 5 | dB | |
| Test results: | | Trace-Mode: | Max-Hold | | |
| | ble was not generated) | Detector-Mode: | Pos Peak | | |
| p (p t | ·· g-··, | | | | |
| Operating condition of | DUT: | Correction: | | | |
| operating condition 1, | | Directional coupler | + | 0.0 dB | |
| A200/A300/A350, fl, 1 | | Directional coupler Coaxial cable (C218) DUT-Antenna (on-axis) Test antenna | + | 0.8 dB | |
| | | DUT-Antenna (on-axis) | + | 0.0 dBi | |
| Test setup: | | Test antenna | + | 0.0 dB | |
| see section 8.1: 1.2hg | | BW correction factor | + | 0.0 dB | |
| ٠ | | Atten, between HPA and | l feedhorn + | 0.0 dB | |
| Test equipment: | | (U005) | + | 29.8 dB | |
| see annex 2: C218, R0 | 001. U005 | TOTAL CORRECTION: | + | 30.6 dB | |
| , | , | | | | |
| Remark: | | Remarks: | | | |
| | | Determination of the 'occ | cupied bandwidth' a | at fu: | |
| | | The measured value is a | bout 77 kHz (delta | marker) | |
| | | Measurement with 3 kHz | resolution filter and | d noise averaging. | |
| Test result: D | Determination of the 'occupied bandwidth' | | | • • | |
| 10011000111 | otomination of the cocapica banamati | | | | |
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Plot No. 7 (50)

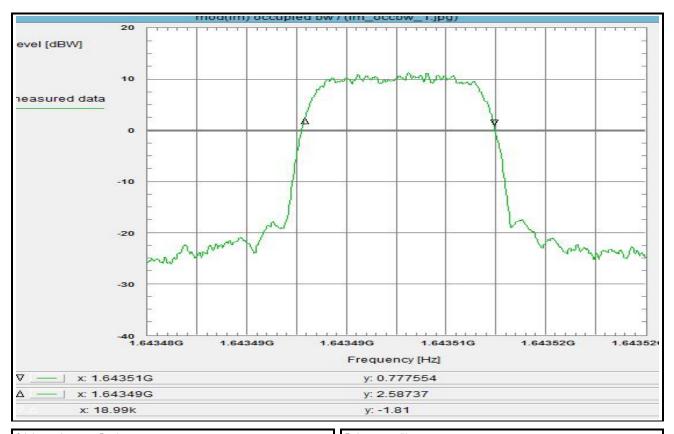


| Subclause: -/- Function test | Environment condition: |
|--|---|
| Modulated rf-carrier at the lower edge of the band (fl) | Date & Time: Thu 09/Nov/2017 18:38:31 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start frequency: 1.62635 GHz |
| (see §2.1049). | Stop frequency: 1.62685 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1.6266 GHz |
| This occupied bandwidth corresponds to the -20 db-bandwidth. | Frequency span: 500 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Video-BW: 10 KHZ |
| T | Input attenuation: 5 dB |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler + 0.0 dB |
| A200/A300/A350, fl, 16QAM, 189 kHz | Coaxial cable (C218) + 0.8 dB DUT-Antenna (on-axis) + 0.0 dBi |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | l est antenna + U.U dB |
| see section 8.1: 1.2hgl | BW correction factor + 0.0 dB |
| | Atten. between HPA and feedhorn + 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 30.6 dB |
| | 11 |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fu: |
| | The measured value is about 170 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Took records. Determinesion of the forecasing boundwidth | Wedsarement with 5 km2 resolution lines and holse averaging. |
| Test result: Determination of the 'occupied bandwidth' | |
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Plot No. 8 (50)

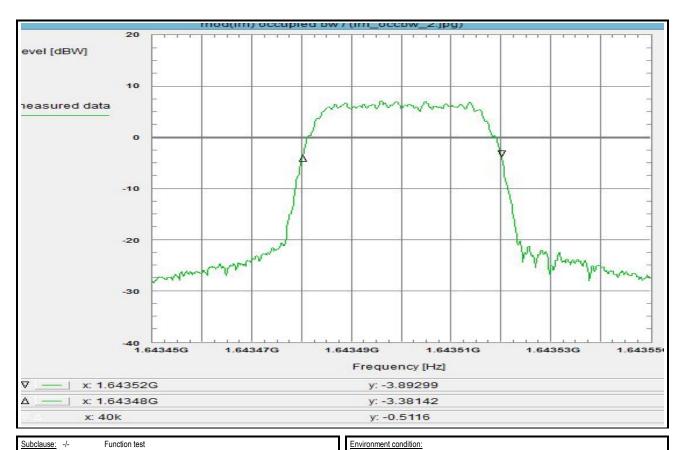


| Subclause: -/- Function test | Environment condition: |
|--|---|
| Modulated rf-carrier in the middle of the band (fm) | Date & Time: Thu 09/Nov/2017 16:13:56 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| 2 de la mination de la consultation de la consultat | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | voluge. |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start fraguency: 16/2/75 CHz |
| (see §2.1049). | Stop frequency: 1.643525 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1.6435 GHz |
| | Frequency span: 50 kHz |
| | Resolution-BW: 1 kHz |
| | Video-BW: 3 kHz |
| | Stop frequency: |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| ,, | |
| Operating condition of DUT: | Correction: |
| operating condition 2, see subclause 1.5.2 | Directional coupler |
| A200/A300/A350, fm, QPSK, 21 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (1k -> 3k) + 4.8 dB |
| | Atten. between HPA and feedhom - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | (U005) + 29.8 dB TOTAL CORRECTION: + 35.4 dB |
| | |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fm: |
| | The measured value is about 19 kHz (delta marker) |
| | Measurement with 1 kHz resolution filter and noise averaging. |
| Test result: Determination of the 'occupied bandwidth' | |
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Plot No. 9 (50)

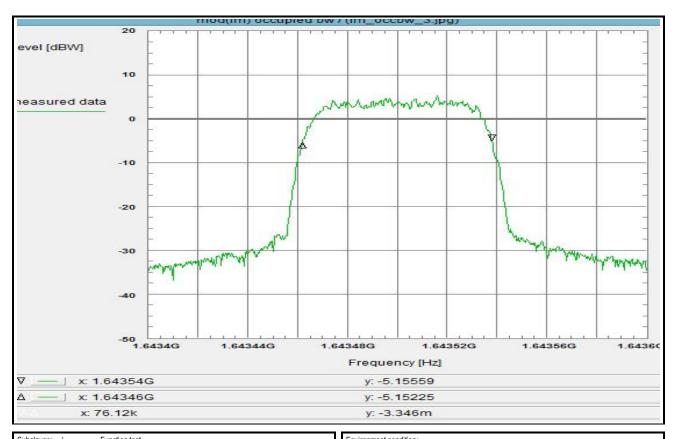


| Subclause/- Full Culting less | Date 9 Time: Thu 00/New/2017 17:00:12 |
|--|--|
| Modulated rf-carrier in the middle of the band (fm) | Date & Time: Thu 09/Nov/2017 17:02:12 Location: CTC advanced GmbH. Laboratory RSC-Sat |
| Determination of the 'occupied bandwidth' | |
| | Temperature: 22 °C |
| 11.9 | Humidity: 55 % |
| <u>Limit:</u> | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start frequency: 1.64345 GHz |
| (see §2.1049). | Stop frequency: 1.64355 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1.6435 GHz Frequency span: 100 kHz Resolution-BW: 3 kHz Video-BW: 10 kHz |
| | Frequency span: 100 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler + 0.0 dB |
| A200/A300/A350, fm, QPSK, 42 kHz | Coaxial cable (C218) + 0.8 dB DUT-Antenna (on-axis) + 0.0 dBi |
| 7 2507 15507 15507 1111 (21 514) | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hql | BW correction factor + 0.0 dB |
| 500 500ton 5.11. 1.2ngi | Atten, between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 30.6 dB |
| 300 dilliox 2. 0210,1001, 0003 | TOTAL GONNEGHON. |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fm: |
| | The measured value is about 40 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test result: Determination of the 'occupied bandwidth' | |
| <u> </u> | |
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Plot No. 10 (50)

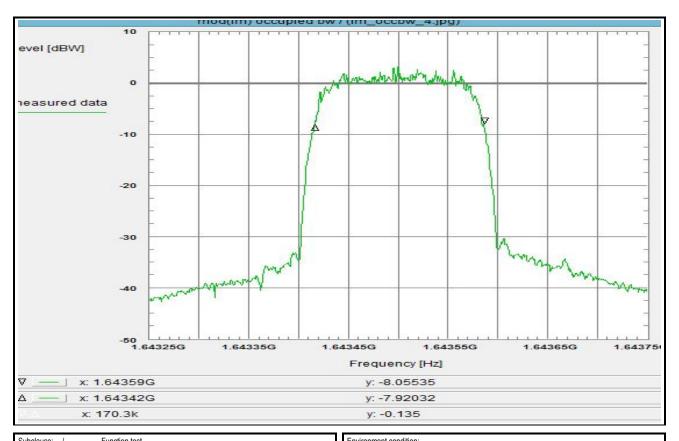


| Subclause: -/- | Function test | l l E | Environment condition: | | | |
|---------------------------|---|-------|--|--------------------|---|--|
| | Modulated rf-carrier in the middle of the band (fm) | | Date & Time: | Thu 09/Nov/2017 | 7 17:20:16 | |
| | Determination of the 'occupied bandwidth' | L | _ocation: | CTC advanced (| GmbH, Laboratory RSC-Sat | |
| | • | ΙΙT | Temperature: | | °C ' | |
| | | | -lumidity: | 55 | | |
| Limit: | | | /oltage: | | Vdc | |
| | Ith, that is the frequency bandwidth such that, below | 11 | · onago: | 20 | | |
| | upper frequency limits, the mean powers radiated are | 9 | Setup of measurement e | auinment: | | |
| | the total mean power radiated by a given emission. | | Start frequency: | 1.6434 | GHz | |
| (see §2.1049). | The total filean power radiated by a given emission. | | Stop frequency: | 1.6436 | | |
| | dth corresponds to the -20 dB-bandwidth. | | Center frequency: | | | |
| This occupied bandwid | dui corresponds to the -20 db-bandwidth. | 115 | Fraguency chan: | 200 | kHz | |
| | | | Frequency span: Resolution-BW: //deo-BW: nput attenuation: Trace-Mode: | 3 | | |
| | | | CESOIULIOII-DVV. | 3 | kHz | |
| | | l l v | video-Bvv: | 10 | | |
| | | l ir | nput attenuation: | 5 | dB | |
| Test results: | | 111 | I race-Mode: | Max-Hold | | |
| see plot (an explicit tab | ole was not generated) | l l l | Detector-Mode: | AVG | | |
| | | | | | | |
| Operating condition of | | | Correction: | | | |
| operating condition 1, | | 110 | Directional coupler | + | 0.0 dB | |
| A200/A300/A350, fm, | QPSK, 42 kHz | C | Coaxial cable (C218) DUT-Antenna (on-axis) Test antenna BW correction factor | + | 0.8 dB | |
| | | | DUT-Antenna (on-axis) | + | 0.0 dBi | |
| Test setup: | | | Test antenna | + | 0.0 dB | |
| see section 8.1: 1.2hgl | | В | BW correction factor | + | 0.0 dB | |
| | | Α | Atten. between HPA and | l feedhorn - | 0.0 dB | |
| Test equipment: | | (1 | (U005) | + | 29.8 dB | |
| see annex 2: C218, R0 | 001, U005 | Τ̈́ | TOTAL CORRECTION: | + | 30.6 dB | |
| · | | | | | | |
| Remark: | | R | Remarks: | | | |
| | | | Determination of the 'occ | cupied bandwidth' | at fm: | |
| | | 117 | The measured value is a | bout 76 kHz (delta | marker) | |
| | | | Measurement with 3 kHz | | | |
| Test result: D | Determination of the 'occupied bandwidth' | | | | - · · · · · · · · · · · · · · · · · · · | |
| restresuit. | retermination of the occupied bandwidth | | | | | |
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Plot No. 11 (50)

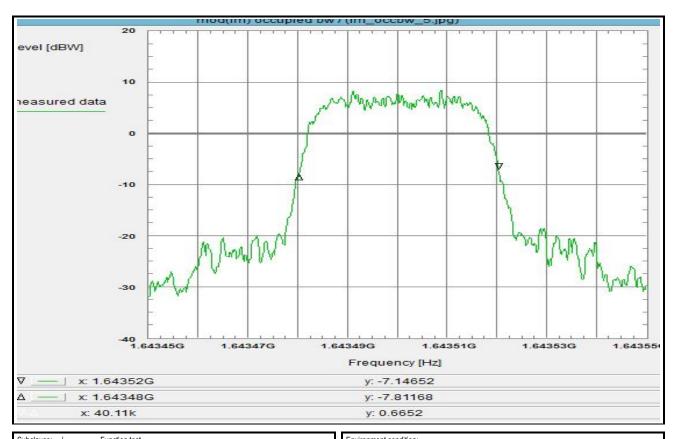


| Subclause: -/- Function test | Environment condition: |
|--|---|
| Modulated rf-carrier in the middle of the band (fm) | Date & Time: Thu 09/Nov/2017 17:41:19 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| ' | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start frequency: 1.64325 GHz |
| (see §2.1049). | Stop frequency: 1.64375 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1 6435 GHz |
| The occupied sandman corresponds to the 25 dB sandman. | Frequency span: 500 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Frequency span: 500 kHz |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| see plot (all explicit table was not generated) | Detector-wode. 1 031 eak |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Disastinasia and an alam |
| A200/A300/A350, fm, QPSK, 189 kHz | Directional coupler |
| A200/A300/A330, IIII, QI 31, 103 KIIZ | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor + 0.0 dB |
| 366 360(IOH 0.1. 1.2Hg) | Atten, between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 30.6 dB |
| See annex 2. G210, R001, 0000 | TOTAL CORRECTION. + 30.0 db |
| Remark: | Remarks: |
| Neman. | Determination of the 'occupied bandwidth' at fm: |
| | The measured value is about 170 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test would be Determined by Africa (Committee of the Africa) | weasurement with 5 km2 resolution litter and hoise averaging. |
| Test result: Determination of the 'occupied bandwidth' | |
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Plot No. 12 (50)

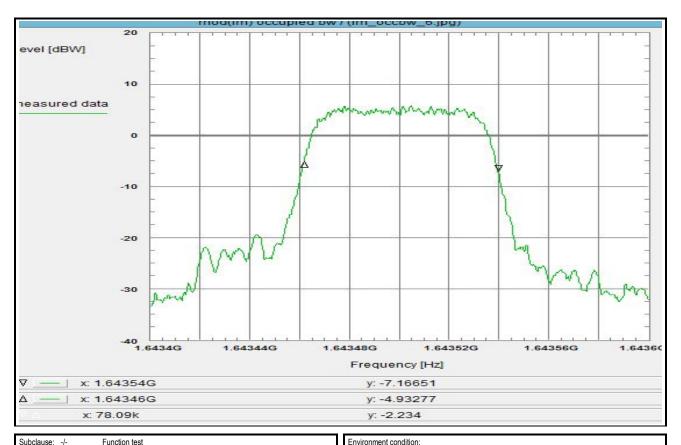


| Subclause: -/- | Function test | Environment condition: | | | |
|---------------------------|--|--|-----------------------|--------------------------|--|
| | Modulated rf-carrier in the middle of the band (fm) | Date & Time: | Thu 09/Nov/2017 | 7 17:57:45 | |
| | Determination of the 'occupied bandwidth' | Location: | CTC advanced 0 | SmbH, Laboratory RSC-Sat | |
| | • | Temperature: | 22 | | |
| | | Humidity: | 55 | % | |
| Limit: | | Voltage: | 28 | Vdc | |
| | th, that is the frequency bandwidth such that, below | 3 . | | | |
| | upper frequency limits, the mean powers radiated are | Setup of measurement e | auipment: | | |
| | the total mean power radiated by a given emission. | Start frequency: | 1.64345 | GHz | |
| (see §2.1049). | , , | Stop frequency: | 1.64355 | GHz | |
| | Ith corresponds to the -20 dB-bandwidth. | Center frequency: | 1.6435 | | |
| , | | Center frequency: Frequency span: Resolution-BW: Video-BW: | 100 | | |
| | | Resolution-BW: | 1 | kHz | |
| | | Video-BW: | 3 | kHz | |
| | | Input attenuation: | 5 | dB | |
| Test results: | | Trace-Mode: | Max-Hold | | |
| see plot (an explicit tab | ole was not generated) | Detector-Mode: | Pos Peak | | |
| p (p | ······································ | | | | |
| Operating condition of | DUT: | Correction: | | | |
| operating condition 1, | | Directional coupler Coaxial cable (C218) DUT-Antenna (on-axis) Test antenna | + | 0.0 dB | |
| A200/A300/A350, fm, | | Coaxial cable (C218) | + | 0.8 dB | |
| , | | DUT-Antenna (on-axis) | + | 0.0 dBi | |
| Test setup: | | Test antenna | + | 0.0 dB | |
| see section 8.1: 1.2hgl | | BW correction factor (1k | | 4.8 dB | |
| | | Atten, between HPA and | | 0.0 dB | |
| Test equipment: | | (U005) | + | 29.8 dB | |
| see annex 2: C218, R0 | 001, U005 | TOTAL CORRECTION: | + | 35.4 dB | |
| | , | | | | |
| Remark: | | Remarks: | | | |
| | | Determination of the 'occ | cupied bandwidth' a | at fm: | |
| | | The measured value is a | | | |
| | | Measurement with 1 kHz | resolution filter and | d noise averaging. | |
| Test result: D | etermination of the 'occupied bandwidth' | | | • • | |
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Plot No. 13 (50)

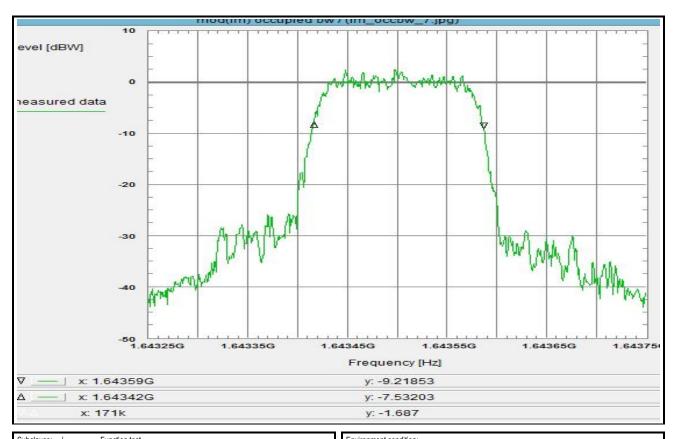


| Subclause: -/- Function test | Environment condition: |
|--|---|
| Modulated rf-carrier in the middle of the band (fm) | Date & Time: Thu 09/Nov/2017 18:16:49 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Humidity: 55 % |
| <u>Limit:</u> | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start frequency: 1.6434 GHz |
| (see §2.1049). | Stop frequency: 1.6436 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1.6435 GHz |
| | Frequency span: 200 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Stop frequency: |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| , | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler |
| A200/A300/A350, fm, 16QAM, 84 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor + 0.0 dB |
| · · | Atten, between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 30.6 dB |
| | |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fm: |
| | The measured value is about 78 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test result: Determination of the 'occupied bandwidth' | |
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Plot No. 14 (50)

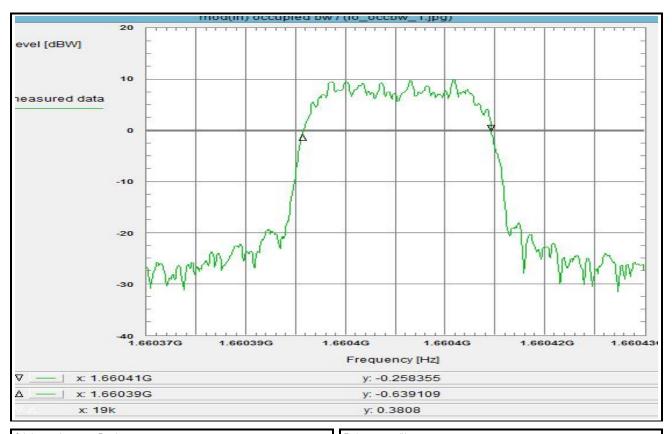


| Subclause: -/- | Function test | Environment condition: | | | |
|---------------------------|--|--|-----------------------|--------------------------|--|
| | Modulated rf-carrier in the middle of the band (fm) | Date & Time: | Thu 09/Nov/2017 | 7 18:29:03 | |
| | Determination of the 'occupied bandwidth' | Location: | CTC advanced (| GmbH, Laboratory RSC-Sat | |
| | | Temperature: | | °C | |
| | | Humidity: | 55 | | |
| Limit: | | Voltage: | 28 | Vdc | |
| | th, that is the frequency bandwidth such that, below | | | | |
| | upper frequency limits, the mean powers radiated are | Setup of measurement e | auipment: | | |
| | the total mean power radiated by a given emission. | Start frequency: | 1.64325 | GHz | |
| (see §2.1049). | , , , , , , , , , , , , , , , , , , , | Stop frequency: | 1.64375 | GHz | |
| | th corresponds to the -20 dB-bandwidth. | Center frequency: Frequency span: Resolution-BW: Video-BW: | 1.6435 | | |
| | | Frequency span: | 500 | | |
| i | | Resolution-BW: | 3 | kHz | |
| | | Video-BW: | 10 | kHz | |
| | | Input attenuation: | 5 | | |
| Test results: | | Trace-Mode: | Max-Hold | | |
| see plot (an explicit tab | ole was not generated) | Detector-Mode: | Pos Peak | | |
| p (p | | | | | |
| Operating condition of | DUT: | Correction: | | | |
| operating condition 1, s | | Directional coupler Coaxial cable (C218) DUT-Antenna (on-axis) Test antenna | + | 0.0 dB | |
| A200/A300/A350, fm, | 16QAM, 189 kHz | Coaxial cable (C218) | + | 0.8 dB | |
| , , | , | DUT-Antenna (on-axis) | + | 0.0 dBi | |
| Test setup: | | Test antenna ` | + | 0.0 dB | |
| see section 8.1: 1.2hgl | | BW correction factor | + | 0.0 dB | |
| ŭ | | Atten. between HPA and | l feedhorn - | 0.0 dB | |
| Test equipment: | | (U005) | + | 29.8 dB | |
| see annex 2: C218, R0 | 001. U005 | TOTAL CORRECTION: | + | 30.6 dB | |
| | . , , | | | | |
| Remark: | | Remarks: | | | |
| , <u> </u> | | Determination of the 'occ | cupied bandwidth' a | at fm: | |
| | | The measured value is a | bout 170 kHz (delta | a marker) | |
| | | Measurement with 3 kHz | resolution filter and | d noise averaging. | |
| Test result: D | Determination of the 'occupied bandwidth' | | | | |
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Plot No. 15 (50)

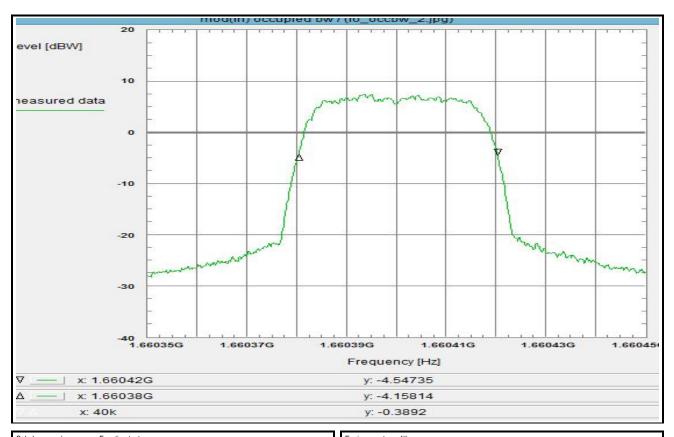


| Subclause: -/- Function test | Environment condition: |
|--|---|
| Modulated rf-carrier at the upper edge of the band (fh) | Date & Time: Thu 09/Nov/2017 16:26:17 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| Botomination of the Goodpied Sandman | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | 20 740 |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start frequency: 1 660375 GHz |
| (see §2.1049). | Stop frequency: 1.660425 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1.6604 GHz |
| | Stop frequency: |
| | Resolution-BW: 1 kHz |
| | Video-BW: 3 kHz |
| | Input attenuation: 5 dB |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| 3. · · · · · · · · · · · · · · · · · · · | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler |
| A200/A300/A350, fh, QPSK, 21 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (1k -> 3k) + 4.8 dB |
| | Atten. between HPA and feedhom + 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 35.4 dB |
| | |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fo: |
| | The measured value is about 19 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test result: Determination of the 'occupied bandwidth' | |
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Plot No. 16 (50)

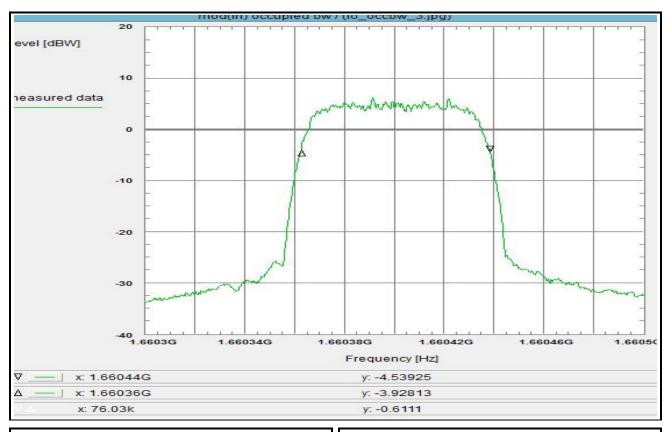


| Subclause: -/- Function test | Environment condition: |
|--|--|
| Modulated rf-carrier at the upper edge of the band (fh) | Date & Time: Thu 09/Nov/2017 17:09:02 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| l ' | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Start frequency: 1.66035 GHz |
| (see §2.1049). | Stop frequency: 1.66045 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1.6604 GHz Frequency span: 100 kHz Resolution-BW: 3 kHz Video-BW: 10 kHz |
| · | Frequency span: 100 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| , | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler + 0.0 dB |
| A200/A300/A350, fh, QPSK, 42 kHz | Directional coupler |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor + 0.0 dB |
| | Atten. between HPA and feedhorn + 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 30.6 dB |
| | |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fh: |
| | The measured value is about 40 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test result: Determination of the 'occupied bandwidth' | |
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Plot No. 17 (50)

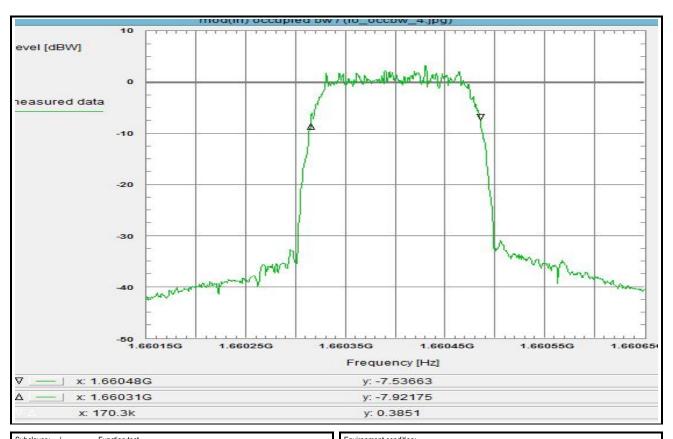


| Subclause: -/- Function test | Environment condition: |
|--|---|
| Modulated rf-carrier at the upper edge of the band (fh) | Date & Time: Thu 09/Nov/2017 17:27:06 |
| Determination of the 'occupied bandwidth' | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| The occupied bandwidth, that is the frequency bandwidth such that, below | |
| its lower and above its upper frequency limits, the mean powers radiated are | Setup of measurement equipment: |
| each equal to 0.5 % of the total mean power radiated by a given emission. | Ctt-f |
| (see §2.1049). | Stop frequency: 1.6605 GHz |
| This occupied bandwidth corresponds to the -20 dB-bandwidth. | Center frequency: 1.6604 GHz |
| | Frequency span: 200 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Start requency: 1.0003 GHz |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler + 0.0 dB |
| A200/A300/A350, fh, QPSK, 84 kHz | Coaxial cable (C218) + 0.8 dB |
| | Directional coupler |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor + 0.0 dB |
| | Atten, between HPA and feedhorn + 0.0 dB |
| Test equipment: | (U005) + 29.8 dB TOTAL CORRECTION: + 30.6 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 30.6 dB |
| | |
| Remark: | Remarks: |
| | Determination of the 'occupied bandwidth' at fh: |
| | The measured value is about 76 kHz (delta marker) |
| | Measurement with 3 kHz resolution filter and noise averaging. |
| Test result: Modulated rf-carrier at the upper edge of the band | |
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Plot No. 18 (50)

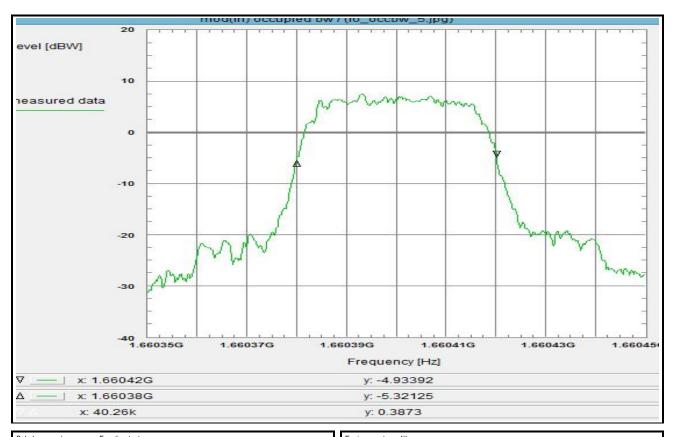


| Subclause: -/- | Function test | Environment condition: | | | |
|-------------------------|---|--|-----------------------|--------------------------|--|
| | Modulated rf-carrier at the upper edge of the band (fh) | Date & Time: | Thu 09/Nov/2017 | 7 17:45:34 | |
| | Determination of the 'occupied bandwidth' | Location: | CTC advanced 0 | SmbH, Laboratory RSC-Sat | |
| | | Temperature: | 22 | | |
| | | Humidity: | 55 | | |
| Limit: | | Voltage: | 28 | Vdc | |
| | Ith, that is the frequency bandwidth such that, below | 3. | | | |
| | upper frequency limits, the mean powers radiated are | Setup of measurement e | auipment: | | |
| | f the total mean power radiated by a given emission. | Start frequency: | 1.66015 | GHz | |
| (see §2.1049). | , , , | Stop frequency: | 1.66065 | GHz | |
| | dth corresponds to the -20 dB-bandwidth. | Center frequency: Frequency span: Resolution-BW: Video-BW: | 1.6604 | | |
| | | Frequency span: | 500 | | |
| | | Resolution-BW: | 3 | kHz | |
| | | Video-BW: | 10 | kHz | |
| | | Input attenuation: | 5 | dB | |
| Test results: | | Trace-Mode: | Max-Hold | | |
| | ble was not generated) | Detector-Mode: | Pos Peak | | |
| p (p | g, | | | | |
| Operating condition of | DUT: | Correction: | | | |
| operating condition 1, | | Directional coupler | + | 0.0 dB | |
| A200/A300/A350, fh, C | QPSK, 189 kHz | Directional coupler Coaxial cable (C218) DUT-Antenna (on-axis) Test antenna | + | 0.8 dB | |
| | · | DUT-Antenna (on-axis) | + | 0.0 dBi | |
| Test setup: | | Test antenna ` | + | 0.0 dB | |
| see section 8.1: 1.2hgl | I | BW correction factor | + | 0.0 dB | |
| ŭ | | Atten. between HPA and | feedhorn + | 0.0 dB | |
| Test equipment: | | (U005) | + | 29.8 dB | |
| see annex 2: C218, R0 | 001, U005 | TOTAL CORRECTION: | + | 30.6 dB | |
| | , | | | | |
| Remark: | | Remarks: | | | |
| , <u>.</u> | | Determination of the 'occ | cupied bandwidth' a | at fo: | |
| | | The measured value is a | bout 170 kHz (delta | marker) | |
| | | Measurement with 3 kHz | resolution filter and | d noise averaging. | |
| Test result: D | Determination of the 'occupied bandwidth' | | | | |
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Plot No. 19 (50)

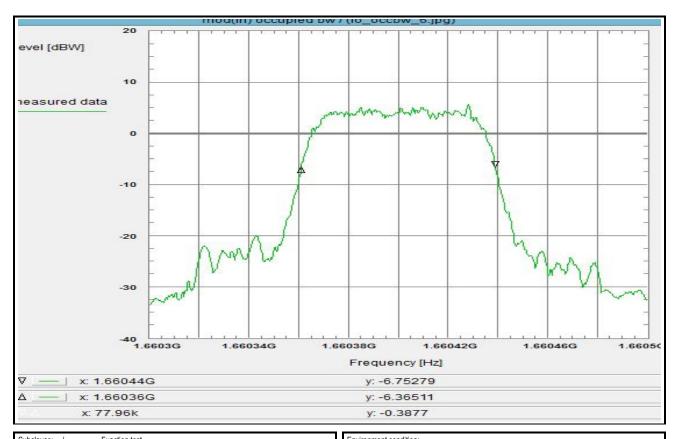


| Subclause: -/- | Function test | Environment condition: | | |
|---------------------------|---|--|-----------------------|--------------------------|
| | Modulated rf-carrier at the upper edge of the band (fh) | Date & Time: | Thu 09/Nov/2017 | 7 18:05:35 |
| | Determination of the 'occupied bandwidth' | Location: | CTC advanced C | SmbH, Laboratory RSC-Sat |
| | | Temperature: | 22 | |
| | | Humidity: | 55 | % |
| Limit: | | Voltage: | 28 | Vdc |
| | th, that is the frequency bandwidth such that, below | 3- | | |
| | upper frequency limits, the mean powers radiated are | Setup of measurement ed | auipment: | |
| | the total mean power radiated by a given emission. | Start frequency: | 1.66035 | GHz |
| (see §2.1049). | , , , , , , , , , , , , , , , , , , , | Ston frequency: | 1.66045 | GHz |
| | th corresponds to the -20 dB-bandwidth. | Center frequency: | 1.6604 | GHz |
| | | Frequency span: | 100 | kHz |
| | | Center frequency: Frequency span: Resolution-BW: Video-BW: | 3 | kHz |
| | | Video-BW: | 10 | kHz |
| | | Input attenuation: | 5 | dB |
| Test results: | | Trace-Mode: | Max-Hold | |
| see plot (an explicit tab | le was not generated) | Detector-Mode: | Pos Peak | |
| | · · | | | |
| Operating condition of | DUT: | Correction: | | |
| operating condition 1, s | | Directional coupler | + | 0.0 dB |
| A200/A300/A350, fh, 1 | 6QAM, 42 kHz | Directional coupler Coaxial cable (C218) DUT-Antenna (on-axis) Test antenna | + | 0.8 dB |
| | | DUT-Antenna (on-axis) | + | 0.0 dBi |
| Test setup: | | Test antenna | + | 0.0 dB |
| see section 8.1: 1.2hgl | | BW correction factor | + | 0.0 dB |
| - | | Atten. between HPA and | feedhorn + | 0.0 dB |
| Test equipment: | | (U005) | | 29.8 dB |
| see annex 2: C218, R0 | 01, U005 | TOTAL CORRECTION: | + | 30.6 dB |
| | | | | |
| Remark: | | Remarks: | | |
| | | Determination of the 'occ | | |
| | | The measured value is al | | |
| | | Measurement with 3 kHz | resolution filter and | d noise averaging. |
| Test result: D | etermination of the 'occupied bandwidth' | | | |
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Plot No. 20 (50)

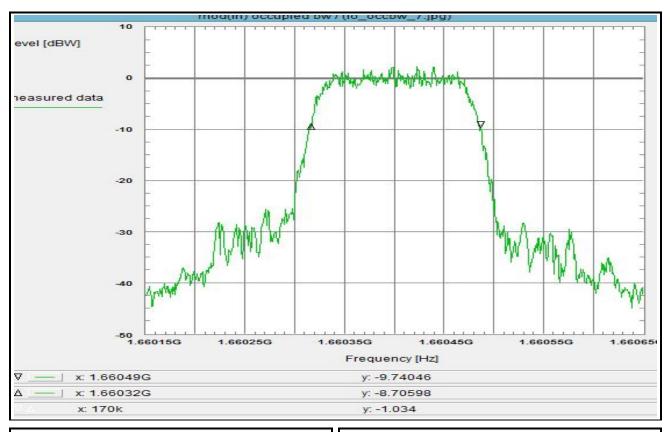


| Subclause: -/- | Function test | Env | vironment condition: | | | | |
|---------------------------|---|------|--|--------------------|-----------|-------------------|---|
| | Modulated rf-carrier at the upper edge of the band (fh) | Dat | te & Time: | Thu 09/Nov/2017 | 7 18:20:4 | 40 | |
| | Determination of the 'occupied bandwidth' | Loc | cation: | CTC advanced G | SmbH, La | aboratory RSC-Sat | |
| | · | Ter | mperature: | 22 | °C | , | |
| | | Hui | midity: | 55 | % | | |
| Limit: | | | tage: | | Vdc | | |
| | h, that is the frequency bandwidth such that, below | | 3 | | | | |
| | upper frequency limits, the mean powers radiated are | Set | tup of measurement ed | quipment: | | | |
| | the total mean power radiated by a given emission. | | rt frequency: | 1.6603 | GHz | | |
| (see §2.1049). | | Sto | p frequency: | 1.6605 | GHz | | |
| | th corresponds to the -20 dB-bandwidth. | Cei | nter frequency: | 1.6604 | | | |
| , | | Fre | nter frequency: equency span: solution-BW: | 200 | | | |
| | | Re | solution-BW: | 3 | kHz | | |
| | | Vid | leo-BW: | 10 | kHz | | |
| | | Inp | ut attenuation: | | dB | | |
| Test results: | | | ice-Mode: | Max-Hold | | | |
| see plot (an explicit tab | le was not generated) | Def | tector-Mode: | Pos Peak | | | |
| (| | 11 | | | | | |
| Operating condition of I | DUT: | Co | rrection: | | | | |
| operating condition 1, s | | Dire | ectional coupler | + | 0.0 d | dB | |
| A200/A300/A350, fh, 16 | 6QAM, 84 kHz | Co | axial cable (C218) IT-Antenna (on-axis) | + | 0.8 d | dB | |
| , , , | , , | DU | T-Antenna (on-axis) | + | 0.0 d | dBi | |
| Test setup: | | Tes | st antenna | + | 0.0 d | dB | |
| see section 8.1: 1.2hgl | | BW | / correction factor | + | 0.0 d | dB | |
| ŭ | | Atte | en, between HPA and | feedhorn + | 0.0 d | dB | |
| Test equipment: | | (UC | 005) | + | 29.8 d | dB | |
| see annex 2: C218, R0 | 01. U005 | | TAL CORRECTION: | + | 30.6 d | dB | |
| | -,, | 11. | | | | | |
| Remark: | | Re | marks: | | | | |
| | | | termination of the 'occ | upied bandwidth' a | at fo: | | |
| | | | e measured value is at | | | | |
| | | | asurement with 3 kHz | | | | |
| Test result: De | etermination of the 'occupied bandwidth' | 11 | | | | 5 5 | J |
| - COLICOUIL | otoriiiiation or the cooupled ballamatil | | | | | | |
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Plot No. 21 (50)

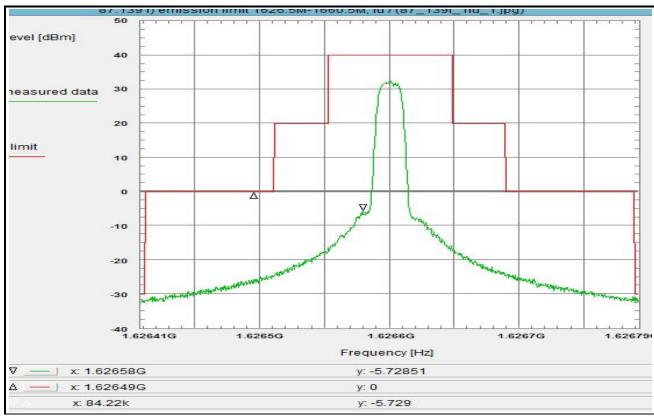


| Subclause: -/- | Function test | Environment condition: | | | |
|---------------------------|---|--|-----------------------|--------------------------|---|
| | Modulated rf-carrier at the upper edge of the band (fh) | Date & Time: | Thu 09/Nov/2017 | 7 18:34:34 | |
| | Determination of the 'occupied bandwidth' | Location: Temperature: Humidity: Voltage: | CTC advanced C | GmbH, Laboratory RSC-Sat | ļ |
| | | Temperature: | 22 | | |
| | | Humidity: | 55 | % | ļ |
| Limit: | | Voltage: | 28 | Vdc | ļ |
| The occupied bandwidt | th, that is the frequency bandwidth such that, below | , and the second | | | |
| | upper frequency limits, the mean powers radiated are | Setup of measurement ed | quipment: | | |
| each equal to 0.5 % of | the total mean power radiated by a given emission. | Start frequency: | 1.66015 | GHz | |
| (see §2.1049). | | Stop frequency: | 1.66065 | GHz | |
| This occupied bandwidth | th corresponds to the -20 dB-bandwidth. | Center frequency: | 1.6604 | GHz | |
| · · | | Frequency span: | 500 | kHz | |
| | | Resolution-BW: | 3 | kHz | |
| | | Video-BW: | 10 | kHz | ļ |
| | | Input attenuation: | 5 | dB | |
| Test results: | | Start frequency: Stop frequency: Center frequency: Frequency span: Resolution-BW: Video-BW: Input attenuation: Trace-Mode: Detecter, Mode: | Max-Hold | | |
| see plot (an explicit tab | le was not generated) | Detector-Mode: | AVG | | |
| | | | | | |
| Operating condition of I | | Correction: | | | |
| operating condition 1, s | | Directional coupler Coaxial cable (C218) DUT-Antenna (on-axis) Test antenna | + | 0.0 dB | |
| A200/A300/A350, fh, 16 | SQAM, 189 kHz | Coaxial cable (C218) | + | 0.8 dB | |
| | | DUT-Antenna (on-axis) | + | 0.0 dBi | |
| Test setup: | | Test antenna | + | | |
| see section 8.1: 1.2hgl | | BW correction factor | + | 0.0 dB | |
| | | Atten. between HPA and | feedhorn + | 0.0 dB | |
| Test equipment: | | (U005) TOTAL CORRECTION: | + | 29.8 dB | ļ |
| see annex 2: C218, R0 | 01, U005 | TOTAL CORRECTION: | + | 30.6 dB | |
| D | | D | | | |
| Remark: | | Remarks: | | -4 fl | |
| | | Determination of the 'occ The measured value is al | | | |
| | | Measurement with 3 kHz | | | |
| T | standard and the factorial bands till f | Weasurement with 3 km2 | resolution litter and | u noise averaging. | |
| Test result: De | etermination of the 'occupied bandwidth' | | | | • |
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Plot No. 22 (50)

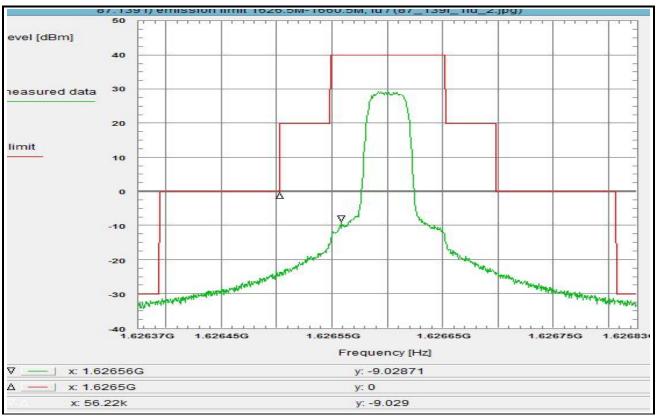


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fl) Limit: Limit according to 87.139(i)(1) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with 87.139(i)(1). | Environment condition: Date & Time: Thu 09/Nov/2017 16:32:05 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 55 % Voltage: 28 Vdc Setup of measurement equipment: Start frequency: Start frequency: 1.626408 GHz Stop frequency: 1.6266 GHz Frequency span: 384 kHz Resolution-BW: 3 kHz Video-BW: 10 kHz Input attenuation: 5 dB Trace-Mode: Average Detector-Mode: AVG |
|---|---|
| Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, see subclause 1.5.2 A200/A300/A350, fl, QPSK, 21 kHz Test setup: see section 8.1: 1.2hgl Test equipment: see annex 2: C218, R001, U005 | Input attenuation: 5 dB |
| Remark: Test result: Test passed | Remarks: Carrier-on state / Carrier at the lower edge of the band (fu) For EIRP calculation: worst-case' = maximum antenna gain |

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Plot No. 23 (50)

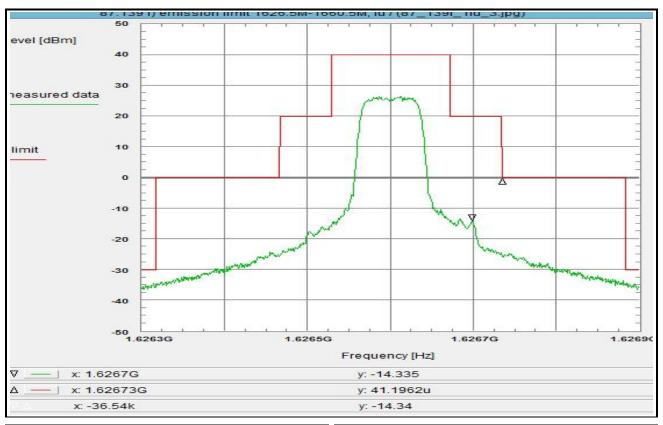


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|---|
| Emission limitations | Date & Time: Thu 09/Nov/2017 17:11:57 |
| Modulated rf-carrier at the lower edge of the band (fl) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| · · · · · · · · · · · · · · · · · · · | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | 25 140 |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Ct-+ f 1 C0C075 CII- |
| in accordance with 87.139(i)(1). | Star frequency: 1.525075 CHz |
| in accordance with 07.103(i)(1). | Contor frequency: 1.020023 GHz |
| | Fraguency apply 450 kHz |
| | Parabetica DW |
| | Resolution-BW: 3 KHZ |
| | Video-BW: 10 kHz |
| <u></u> | Start frequency: 1.626375 GHz |
| Test results: | Trace-Mode: Average |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler + 0.0 dB |
| A200/A300/A350, fl, QPSK, 42 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Directional coupler |
| see section 8.1: 1.2hql | BW correction factor (3k -> 4k) + 1.2 dB |
| , | Atten, between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB |
| 300 umlox 2. 32 10, 100 1, 3000 | TOTAL CONTROL |
| Remark: | Remarks: |
| Normania. | Carrier-on state / Carrier at the lower edge of the band (fu) |
| | For EIRP calculation: |
| | worst-case' = maximum antenna gain |
| Took words. Took wood | worst-case - maximum antenna gain |
| <u>Test result:</u> Test passed | |
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Plot No. 24 (50)

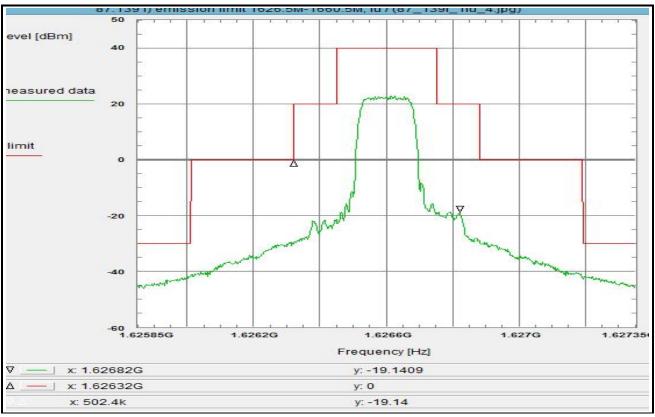


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|---|
| Emission limitations | Date & Time: Thu 09/Nov/2017 17:34:49 |
| Modulated rf-carrier at the lower edge of the band (fl) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| modulated it sufficient tower suge of the band (ii) | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | 20 Va |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.6263 GHz |
| in accordance with 87.139(i)(1). | Stop frequency: 1 6269 GHz |
| | Center frequency: 1.6266 GHz |
| | Center frequency: |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Input attenuation: 5 dB Trace-Mode: Average |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| ,, | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler |
| A200/A300/A350, fl, QPSK, 84 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Atten. between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier at the lower edge of the band (fu) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | |
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Plot No. 25 (50)

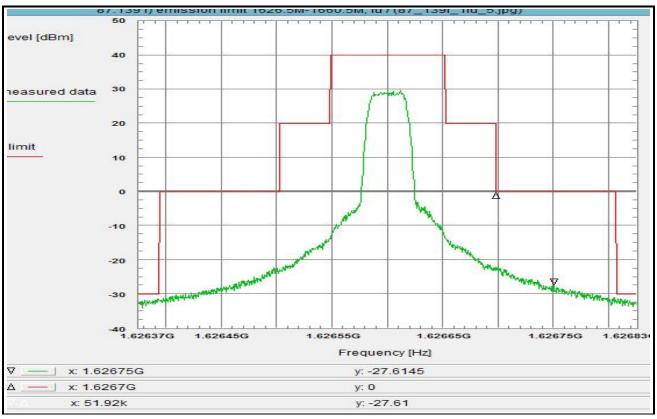


| Subclause: 87.139 i) | Frequencies, frequency tolerance and emission limitations | <u>Enviro</u> | nment condition: | | | |
|-----------------------------|---|---------------|---------------------|--|-----------|--------------------|
| | Emission limitations | | Time: | Thu 09/Nov/2017 | 7 17:49 | 9:57 |
| | Modulated rf-carrier at the lower edge of the band (fl) | Location | n: | CTC advanced (| GmbH. | Laboratory RSC-Sat |
| | • () | Tempe | rature: | | | • |
| | | Humid | rature: ity: | 55 | % | |
| imit: | | Voltag | e: | 28 | Vdc | |
| imit according to 87.13 | 9(i)(1) | 11 | | | | |
| | ssions shall be attenuated | Setup | of measurement e | auipment: | | |
| elow the mean output p | | | | | GHz | |
| n accordance with 87.13 | | Stop fr | eauency: | 1.62735 | GHz | |
| | (// / | Center | frequency: | 1.6266 | GHz | |
| | | Freque | ncv span: | 1.5 | MHz | |
| | | Resolu | tion-BW | 3 | kHz | |
| | | Video- | BW: | 10 | kHz | |
| | | Input | ttenuation: | 1.62585 1.62735 1.6266 1.5 3 10 5 Average | dB | |
| Test results: | | Trace- | Mode: | Average | | |
| see plot (an explicit table | e was not generated) | Detect | or-Mode: | AVG | | |
| oo piot (air oxpiloit table | was not gonorated) | Doloot | or modo. | 7110 | | |
| Operating condition of D | IIIT· | Correc | tion: | | | |
| pperating condition 1, se | | Directi | nal counter | + | 0.0 | dB |
| A200/A300/A350, fl, QP | | Coavia | l cable (C218) | | 0.0 | dB |
| 1200/A000/A000, II, QI V | OK, 100 KHZ | DLIT-A | ntenna (on-avis) | + + + | 0.0 | dBi |
| Test setup: | | Test a | ntonna (on-axis) | | 0.0 | dB. |
| see section 8.1: 1.2hgl | | RW co | rraction factor (3k | -> 11/) + | 1.0 | dB |
| ee section o. i. i.ziigi | | Atton | hotwoon UDA and | -> 4k) + I feedhorn - | 0.0 | 4D |
| Test equipment: | | (U005) | Detween in A and | riceunom - | 29.8 | 4D |
| ee annex 2: C218, R00 | 14 11005 | (0005) | CODDECTION | + | 29.0 | ND ND |
| ee annex 2: C218, R00 | 11, 0005 | IOTAL | . CORRECTION: | + | 31.0 | ФВ |
| Remark: | | Remar | lea: | | | |
| CEITIAIN. | | | | at the lower edge of | of the h | and (fu) |
| | | | | at the lower edge t | ט שווו וכ | and (iu) |
| | | | RP calculation: | | | |
| | | worst- | case' = maximum | i antenna gain | | |
| <u> Fest result:</u> Te | st passed | | | | | |
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Plot No. 26 (50)

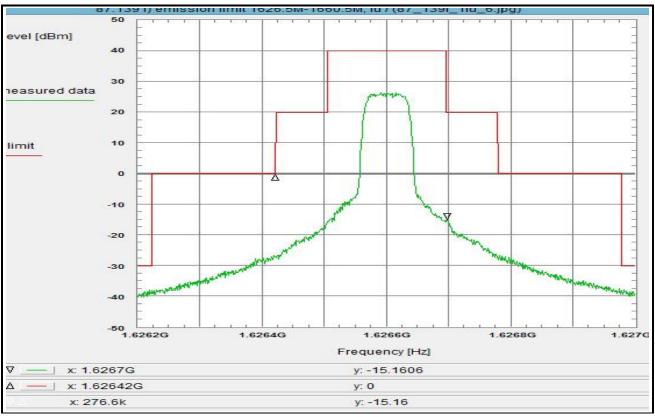


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|---|
| Emission limitations | Date & Time: Thu 09/Nov/2017 18:10:31 |
| Modulated rf-carrier at the lower edge of the band (fl) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| • | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Chart francisco 1 (200275 CI)- |
| in accordance with 87.139(i)(1). | Ston frequency: 1.626825 GHz |
| 11 dood dailed mai 011100(i)(1). | Center frequency: 1 6266 GHz |
| | Frequency span: 450 kHz |
| | Resolution-RW: 3 kHz |
| | Video BW: 10 kHz |
| | Input attenuation: F dP |
| Test results: | 1.6263/5 GHz |
| see plot (an explicit table was not generated) | Trace-woode. Average |
| see plot (an explicit table was not generated) | Detector-wode: AVG |
| O | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler + 0.0 dB |
| A200/A300/A350, fl, 16QAM, 42 kHz | Coaxial cable (C218) + U.8 dB |
| I | Directional coupler |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Atten. between HPA and feedhom - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB |
| Remark: | Remarks: |
| | Carrier-on state / Carrier at the lower edge of the band (fu) |
| | For EIRP calculation: |
| | worst-case' = maximum antenna gain |
| Test result: Test passed | J |
| Test Testili. Test passed | |
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Plot No. 27 (50)

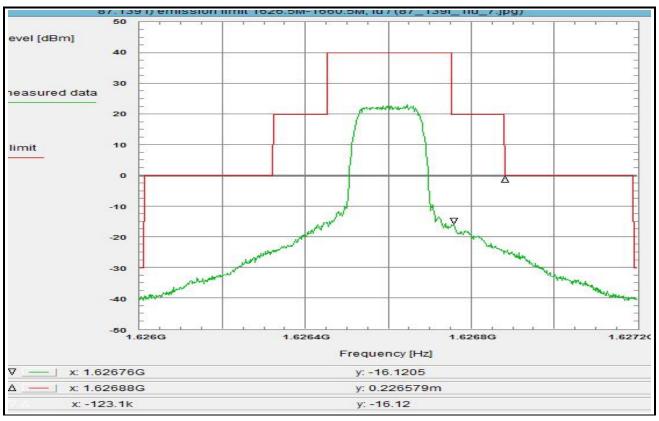


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (ft) Limit: Limit according to 87.139(i)(1) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with 87.139(i)(1). | Environment condition: Date & Time: Thu 09/Nov/2017 18:23:12 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 55 % Voltage: 28 Vdc Setup of measurement equipment: Stop frequency: Start frequency: 1.6262 GHz Stop frequency: 1.627 GHz Center frequency: 1.6266 GHz Frequency span: 800 kHz Resolution-BW: 3 kHz Video-BW: 10 kHz Input attenuation: 5 dB Trace-Mode: Average Detector-Mode: AVG |
|--|--|
| Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, see subclause 1.5.2 | C |
| A200/A300/A350, fl, 16QAM, 84 kHz Test setup: see section 8.1: 1.2hgl Test equipment: see annex 2: C218, R001, U005 | Contection: Directional coupler |
| Remark: Test result: Test passed | Remarks: Carrier-on state / Carrier at the lower edge of the band (fu) For EIRP calculation: 'worst-case' = maximum antenna gain |
| . SST pubbed | |
| | |

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Plot No. 28 (50)

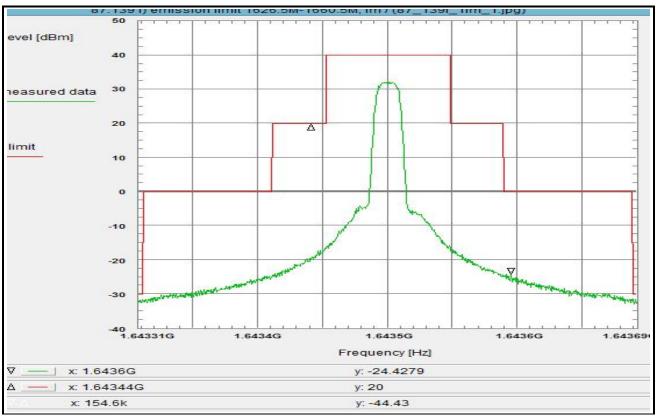


| Out-desired 97 (200) | Facilities and the State of the |
|--|--|
| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
| Emission limitations | Date & Time: Thu 09/Nov/2017 18:39:37 |
| Modulated rf-carrier at the lower edge of the band (fl) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| 11. 7 | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.626 GHz |
| in accordance with 87.139(i)(1). | Start frequency: 1.6272 GHz |
| | Center frequency: 1.6266 GHz |
| | Frequency span: 1.2 MHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | |
| Test results: | Trace-Mode: Average |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler |
| A200/A300/A350, fl, 16QAM, 189 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Atten. between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier at the lower edge of the band (fu) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | |
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Plot No. 29 (50)

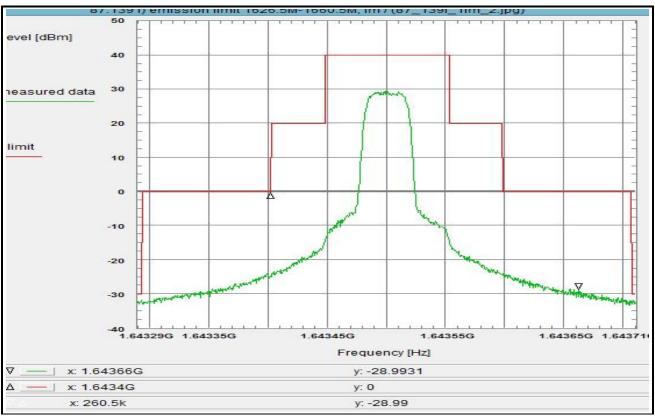


| <u>Subclause:</u> 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) | Environment condition: Date & Time: Thu 09/Nov/2017 16:21:10 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C |
|--|---|
| Limit: Limit according to 87.139(i)(1) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with 87.139(i)(1). | Humidity: 55 % Voltage: 28 Vdc Setup of measurement equipment: Start frequency: 1.643308 GHz Stop frequency: 1.643692 GHz Center frequency: 1.6435 GHz Frequency span: 384 kHz |
| Test results: see plot (an explicit table was not generated) | 1.643692 GHz |
| Operating condition of DUT: operating condition 1, see subclause 1.5.2 A200/A300/A350, fm, QPSK, 21 kHz Test setup: see section 8.1: 1.2hgl | Correction: Directional coupler + 0.0 dB Coaxial cable (C218) + 0.8 dB DUT-Antenna (on-axis) + 0.0 dBi Test antenna + 0.0 dB BW correction factor (3k -> 4k) + 1.2 dB Atten_between HPA and feedhorm - 0.0 dB |
| Test equipment: see annex 2: C218, R001, U005 Remark: | (U005) + 29.8 dB TOTAL CORRECTION: + 31.8 dB Remarks: Carrier-on state / Carrier in the middle of the band (fm) |
| Test result: Test passed | For EIRP calculation: worst-case' = maximum antenna gain |
| | |
| | |

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Plot No. 30 (50)

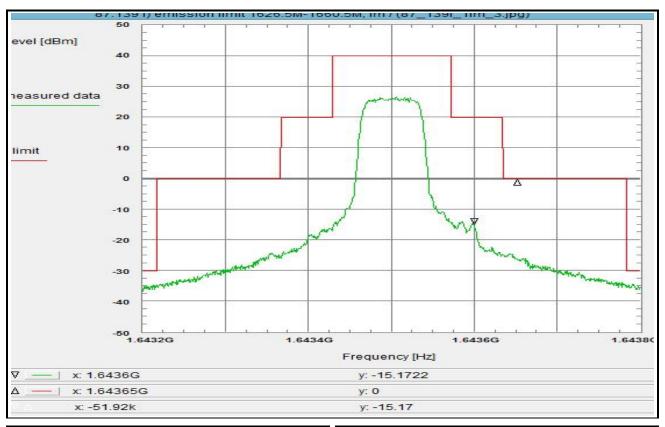


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|---|
| Emission limitations | Date & Time: Thu 09/Nov/2017 16:59:21 |
| Modulated rf-carrier in the middle of the band (fm) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| iniodulated if earlier in the inicale of the band (iiii) | Temperature: 22 °C |
| | Humidity: 55 % |
| 12.59 | |
| <u>Limit:</u> | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.64329 GHz |
| in accordance with 87.139(i)(1). | Stop frequency: 1.64371 GHz |
| | Center frequency: 1.6435 GHz |
| | Frequency span: 420 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Start frequency: |
| Test results: | Trace Mode: Average |
| | Pote-timude. Average |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Contection: Directional coupler |
| A200/A300/A350, fm, QPSK, 42 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hql | BW correction factor (3k -> 4k) + 1.2 dB |
| ············ • | Atten between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB |
| see alliex 2. G2 10, R00 1, 0000 | TOTAL CORRECTION. + 31.0 db |
| Demands | Damaska |
| Remark: | Remarks: |
| | Carrier-on state / Carrier in the middle of the band (fm) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | |
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Plot No. 31 (50)

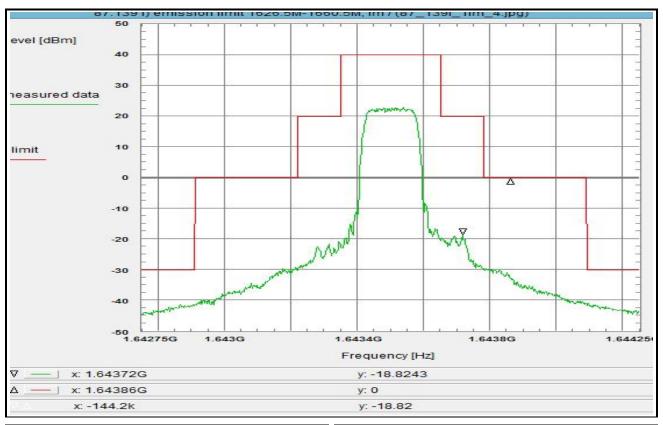


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Limit: Limit according to 87.139(i)(1) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with 87.139(i)(1). | Environment condition: Date & Time: Thu 09/Nov/2017 17:22:27 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 55 % Voltage: 28 Vdc Setup of measurement equipment: Start frequency: Start frequency: 1.6432 GHz Stop frequency: 1.6438 GHz Center frequency: 1.6435 GHz Frequency span: 600 kHz Resolution-BW: 3 kHz Video-BW: 10 kHz |
|---|--|
| Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, see subclause 1.5.2 A200/A300/A350, fm, QPSK, 42 kHz Test setup: see section 8.1: 1.2hgl Test equipment: see annex 2: C218, R001, U005 | Video-BW: 10 kHz Input attenuation: 5 dB Trace-Mode: Average Detector-Mode: AVG Correction: Directional coupler Coaxial cable (C218) + 0.8 dB DUT-Antenna (on-axis) + 0.0 dBi Test antenna + 0.0 dB BW correction factor (3k -> 4k) + 1.2 dB Atten. between HPA and feedhorn - 0.0 dB (U005) + 29.8 dB TOTAL CORRECTION: + 31.8 dB |
| Remark: Test result: Test passed | Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: `worst-case' = maximum antenna gain |

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Plot No. 32 (50)

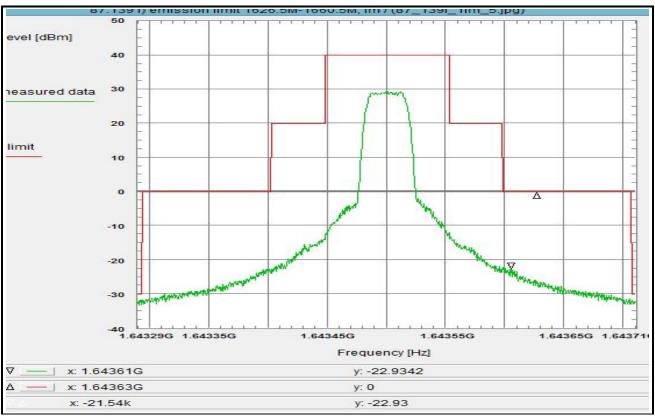


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|---|
| Emission limitations | Date & Time: Thu 09/Nov/2017 17:38:02 |
| Modulated rf-carrier in the middle of the band (fm) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Humidity: 55 % |
| <u>Limit:</u> | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.64275 GHz |
| in accordance with 87.139(i)(1). | Stop frequency: 1.64425 GHz |
| | Center frequency: 1.6435 GHz |
| | Frequency span: 1.5 MHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Stop frequency: 1.64425 GHz |
| Test results: | Trace-Mode: Clear Write |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler |
| A200/A300/A350, fm, QPSK, 189 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Atten. between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier in the middle of the band (fm) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | |
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Plot No. 33 (50)

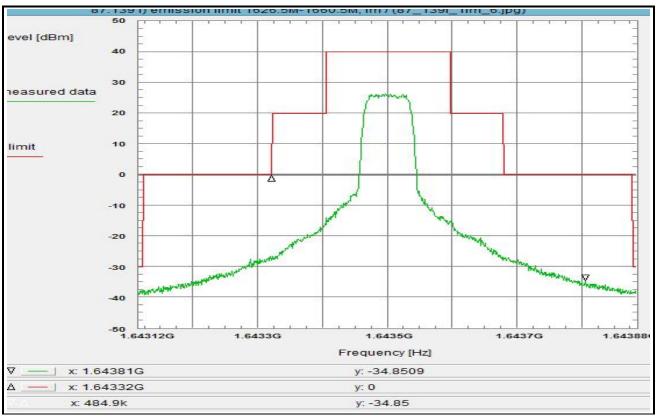


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|--|
| Emission limitations | Date & Time: Thu 09/Nov/2017 18:00:33 |
| Modulated rf-carrier in the middle of the band (fm) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | The second of th |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | |
| in accordance with 87.139(i)(1). | Stor frequency: 1.64371 GHz |
| 11 doordance man or 100(1)(1). | Center frequency: 1.6435 GHz |
| | Fraguency enan: 120 kHz |
| | Pacalitica DW: 2 kHz |
| | Nesolution-DW. 3 N12 |
| | Video-BVV: 10 kHz |
| Total and the | Start frequency: 1.64329 GHz |
| Test results: | Trace-Mode: Average |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Correction: Directional coupler + 0.0 dB Coaxial cable (C218) + 0.8 dB DUT-Antenna (on-axis) + 0.0 dB Test antenna + 0.0 dB BW correction factor (3k -> 4k) + 1.2 dB Atten. between HPA and feedhorn - 0.0 dB Capable Ca |
| A200/A300/A350, fm, 16QAM, 42 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| •••••••••••••••••••••••••••••••••••••• | Atten, between HPA and feedhom - 0.0 dB |
| Test equipment: | ■ (U005) + 29.8 dB |
| see annex 2: R001 | TOTAL CORRECTION: + 31.8 dB |
| SOO WINOX E. 1 GOT | TOTAL CONNECTION. |
| Remark: | Remarks: |
| TWINE TO THE TOTAL THE TOTAL TO THE TOTAL TOTAL TO THE TO | Carrier-on state / Carrier in the middle of the band (fm) |
| | For EIRP calculation: |
| | /worst-case/ = maximum antenna gain |
| Test weard. | worst-case - maximum antenna gain |
| Test result: Test passed | |
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Plot No. 34 (50)

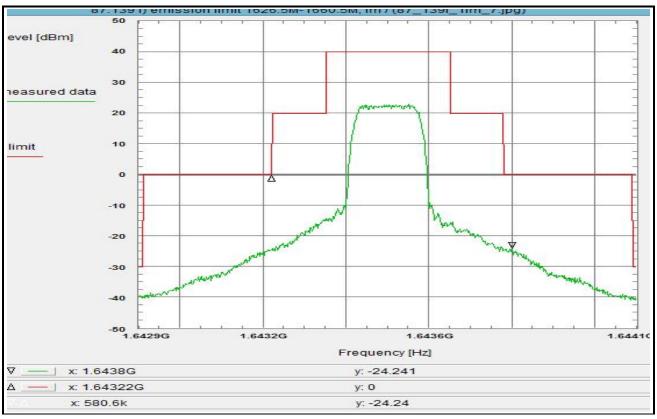


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) | Environment condition: Date & Time: Thu 09/Nov/2017 18:13:52 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 55 % |
|--|--|
| Limit: Limit according to 87.139(i)(1) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with 87.139(i)(1). | Noltage: 28 Vdc Setup of measurement equipment: Start frequency: 1.643116 GHz Stop frequency: 1.643884 GHz Center frequency: 1.6435 GHz Frequency span: 768 kHz Resolution-BW: 3 kHz Video-BW: 10 kHz Input attenuation: 5 dB Trace-Mode: Clear Write Detector-Mode: AVG |
| Test results: see plot (an explicit table was not generated) | Input attenuation: 5 dB Trace-Mode: Clear Write Detector-Mode: AVG |
| Operating condition of DUT: operating condition 1, see subclause 1.5.2 A200/A300/A350, fm, 16QAM, 84 kHz Test setup: see section 8.1: 1.2hgl Test equipment: see annex 2: C218, R001, U005 | Correction: Directional coupler + 0.0 dB Coaxial cable (C218) + 0.8 dB DUT-Antenna (on-axis) + 0.0 dBi Test antenna + 0.0 dB BW correction factor (3k -> 4k) + 1.2 dB Atten. between HPA and feedhom - 0.0 dB (U005) + 29.8 dB TOTAL CORRECTION: + 31.8 dB |
| Remark: Test result: Test passed | Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: 'worst-case' = maximum antenna gain |
| | |

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Plot No. 35 (50)



| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) | Environment condition: Date & Time: Thu 09/Nov/2017 18:30:23 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C |
|---|--|
| Limit: Limit according to 87.139(i)(1) The mean power of emissions shall be attenuated below the mean output power of the transmitter | Humidity: 55 % Voltage: 28 Vdc Setup of measurement equipment: |
| in accordance with 87.139(i)(1). | Start frequency: 1.6429 GHz |
| Test results: see plot (an explicit table was not generated) | Input attenuation: 5 dB Trace-Mode: Average Detector-Mode: AVG |
| Operating condition of DUT: operating condition 1, see subclause 1.5.2 A200/A300/A350, fm, 16QAM, 189 kHz | Correction: Directional coupler + 0.0 dB Coaxial cable (C218) + 0.8 dB DUT-Antenna (on-axis) + 0.0 dBi Test antenna + 0.0 dB BW correction factor (3k -> 4k) + 1.2 dB Atten, between HPA and feedhorn - 0.0 dB |
| Test setup: see section 8.1: 1.2hgl Test equipment: see annex 2: C218, R001, U005 | 1est antenna |
| Remark: | Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: 'worst-case' = maximum antenna gain |
| Test result: Test passed | worst-case = maximum antenna gain |
| | |
| | |

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Plot No. 36 (50)

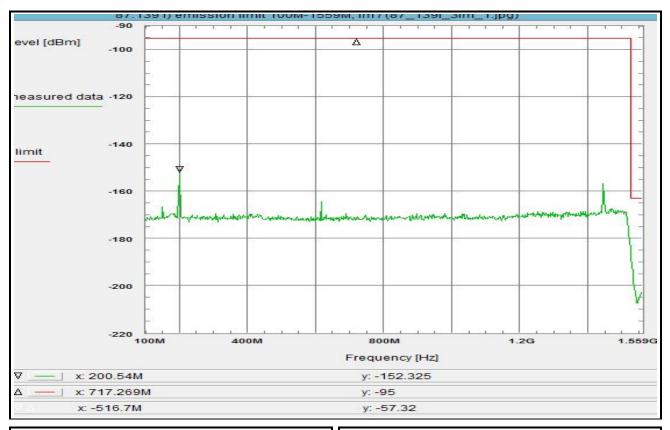


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|---|
| Emission limitations | Date & Time: Fri 10/Nov/2017 10:42:29 |
| Modulated rf-carrier in the middle of the band (fm) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Temperature: 22 °C Humidity: 55 % |
| <u>.imit:</u> | Voltage: 28 Vdc |
| imit according to 87.139(i)(1) | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| pelow the mean output power of the transmitter | Start frequency: 9 kHz |
| n accordance with 87.139(i)(1). | Stop frequency: 100 MHz |
| | Center frequency: 50 0045 MHz |
| | Frequency span: 99 991 MHz |
| | Pacolution RW: 3 kHz |
| | Vidoo PW: 10 kHz |
| | Setup of measurement equipment: Start frequency: Stop frequency: 100 Center frequency: 50.0045 Frequency span: Prequency span: Resolution-BW: Video-BW: 100 Input attenuation: Trace-Mode: Clear Write Detector Medic: Page Rock |
| Fest results: | Trope Mode: Close Write |
| | Trace-wode: Clear write |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| Described and Programme Court | |
| Operating condition of DUT: | Correction: |
| operating condition 2, see subclause 1.5.2 | Directional coupler (WDLN) - 80.0 dB |
| A200/A300/A350, valid for all channels and modulations | Coaxial cable (C218) + 0.2 dB |
| | DUT-Antenna + 0.0 dBi |
| <u>Fest setup:</u> | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Connector + 1.0 dB |
| <u>Fest equipment:</u> | (FCOB) + 8.6 dB |
| see annex 2: C218, FCOB, R001, WDLN | Correction: Directional coupler (WDLN) |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier in the middle of the band (fm) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | 1 |
| rest result. | Marker shows the zero line of the Spectrum Analyzer |
| | marker shows the zero line of the eposition vitally zer |
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Plot No. 37 (50)

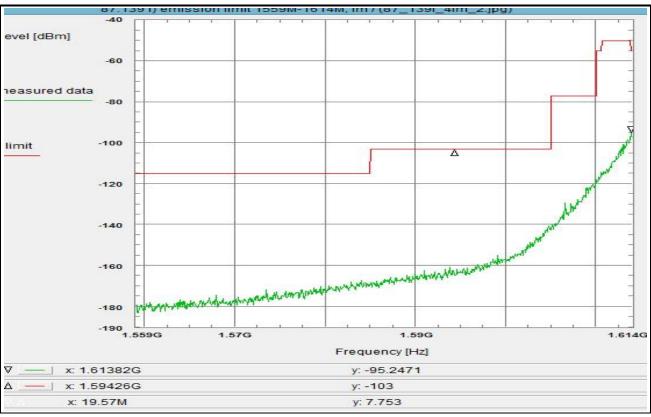


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|---|
| Emission limitations | Date & Time: Fri 10/Nov/2017 10:37:09 |
| Modulated rf-carrier in the middle of the band (fm) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| modulated it edition in the initials of the band (iiii) | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | 15.tago. |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | 400 400 |
| in accordance with 87.139(i)(1). | Stop frequency: 1.559 GHz |
| | Start frequency: 100 MHz |
| | Frequency span: 1.459 GHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Trace-Mode: Max-Hold |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| ,, | |
| Operating condition of DUT: | Correction: |
| operating condition 2, see subclause 1.5.2 | One to the content of the content |
| A200/A300/A350, valid for all channels and modulations | Coaxial cable (C218) + 0.6 dB |
| | DUT-Antenna + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Connector + 1.0 dB |
| Test equipment: | (FCOB) + 8.8 dB |
| see annex 2: C218, FCOB, R001, WDLN | TOTAL CORRECTION:90.6 dB |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier in the middle of the band (fm) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | |
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Plot No. 38 (50)

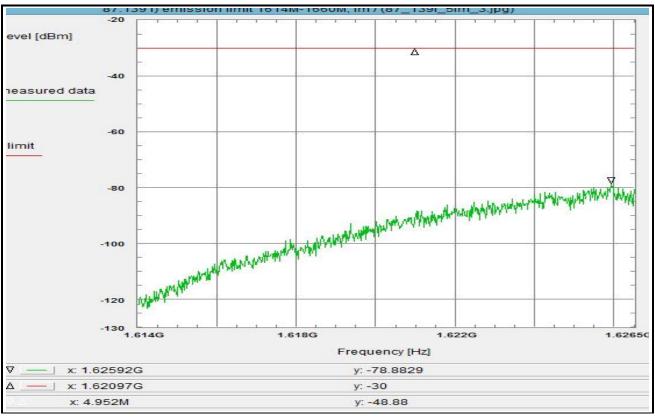


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Limit: Limit according to 87.139(i)(1) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with 87.139(i)(1). | Environment condition: Date & Time: Fri 10/Nov/2017 10:43:44 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 55 % Voltage: 28 Vdc Setup of measurement equipment: Start frequency: Start frequency: 1.559 GHz Stop frequency: 1.614 GHz Center frequency: 1.5865 GHz Frequency span: 55 MHz Resolution-BW: 3 kHz Video-BW: 10 kHz Input attenuation: 5 dB Trace-Mode: Clear Write |
|---|--|
| Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 2, see subclause 1.5.2 A200/A300/A350, valid for all channels and modulations Test setup: see section 8.1: 1.2hgl Test equipment: see annex 2: C218, FCOB, R001, WDLN | Video-BW: |
| Remark: Test result: Test passed | Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: 'worst-case' = maximum antenna gain |

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Plot No. 39 (50)

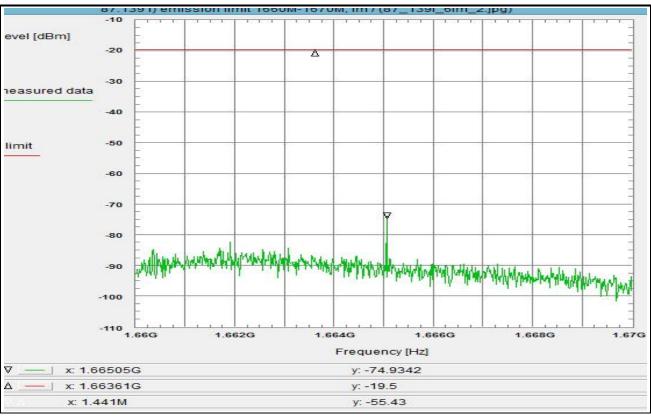


| Subclause: 87.139 i) | Frequencies, frequency tolerance and emission limitations | Environment condition: | | |
|-----------------------------|---|---|-------------------|--------------------------|
| <u>Oubclause.</u> 07.1001) | Emission limitations | | Fri 10/Nov/2017 | 10.45.28 |
| | Modulated rf-carrier in the middle of the band (fm) | | | GmbH, Laboratory RSC-Sat |
| | Modulated II-carrier in the initiale of the band (iiii) | Temperature: | | °C |
| | | Humidity: | 55 | |
| 1 :: | | | | Vdc |
| Limit: | N/\/4\ | Voltage: | 28 | VdC |
| Limit according to 87.139 | 3(1)(1) | 11 | | |
| | sions shall be attenuated | Setup of measurement equ | 1011 | 011 |
| below the mean output p | | Start frequency: | 1.614 | GHZ |
| in accordance with 87.13 | 9(1)(1). | Stop frequency: | 1.6265 | GHZ |
| | | Center frequency: | 1.62025 | GHz |
| | | Frequency span: | 12.5 | MHz |
| | | Resolution-BW: | 3 | kHz |
| | | Video-BW: | 10 | kHz |
| | | Start frequency: Stop frequency: Center frequency: Frequency span: Resolution-BW: Video-BW: Input attenuation: Trace-Mode: | 5 | dB |
| Test results: | | Trace-Mode: | Clear Write | |
| see plot (an explicit table | was not generated) | Detector-Mode: | Pos Peak | |
| | | | | |
| Operating condition of DI | <u>UT:</u> | Correction: | | |
| operating condition 2, se | e subclause 1.5.2 | Directional coupler (WDLN) |) - | 20.2 dB |
| A200/A300/A350, valid for | or all channels and modulations | Coaxial cable (C218) | + | 0.8 dB |
| · | | DUT-Antenna ` | + | 0.0 dBi |
| Test setup: | | Test antenna | + | 0.0 dB |
| see section 8.1: 1.2hgl | | BW correction factor (3k -> | 4k) + | 1.2 dB |
| | | Connector | , + | 1.0 dB |
| Test equipment: | | (FCOB) | + | 75.4 dB |
| see annex 2: C218, FCO | B ROO1 WDI N | Correction: Directional coupler (WDLN) Coaxial cable (C218) DUT-Antenna Test antenna BW correction factor (3k -> Connector (FCOB) TOTAL CORRECTION: | + | 58.2 dB |
| 000 00x 2. 02 10, 1 00 | 2,11001,110211 | | | 00.2 45 |
| Remark: | | Remarks: | | |
| | | Carrier-on state / Carrier in | the middle of the | e band (fm) |
| | | For EIRP calculation: | | 5 5 5 m (m) |
| | | 'worst-case' = maximum ar | ntenna gain | |
| Test result: Tes | st passed | Wordt dade maximum an | intornia gani | |
| restresuit. | si passeu | | | |
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Plot No. 40 (50)

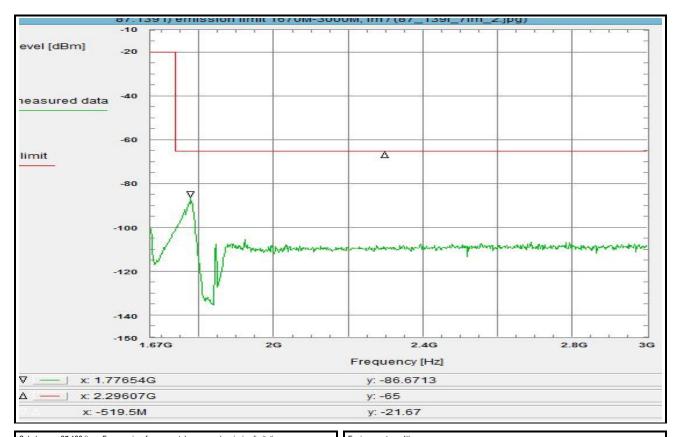


| | <u></u> |
|--|---|
| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
| Emission limitations | Date & Time: Fri 10/Nov/2017 10:46:21 |
| Modulated rf-carrier in the middle of the band (fm) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| · ' | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | vollage. |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.66 GHz |
| | Start frequency. 1.00 GHZ |
| in accordance with 87.139(i)(1). | Stop frequency: 1.67 GHZ |
| | Center frequency: 1.665 GHZ |
| | Frequency span: 10 MHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Start frequency: |
| Test results: | Trace-Mode: Clear Write |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| , , , | |
| Operating condition of DUT: | Correction: |
| operating condition 2, see subclause 1.5.2 | Directional coupler (WDLN) - 0.8 dB |
| A200/A300/A350, valid for all channels and modulations | Coavial cable (C218) + 0.8 dB |
| 72200/7000/7000, Valid for all charmors and modulations | DIT Antenna + 0.0 dBi |
| Test setup | Tost entenne |
| Test setup: see section 8.1: 1.2hql | PW |
| see section 8.1: 1.2ngi | BW correction factor (3k -> 20k) + 8.2 dB |
| | Connector + 1.0 dB |
| Test equipment: | (FCOB) + 24.1 dB |
| see annex 2: C218, FCOB, R001, WDLN | Correction: Directional coupler (WDLN) |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier in the middle of the band (fm) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | |
| Test passed | |
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Plot No. 41 (50)

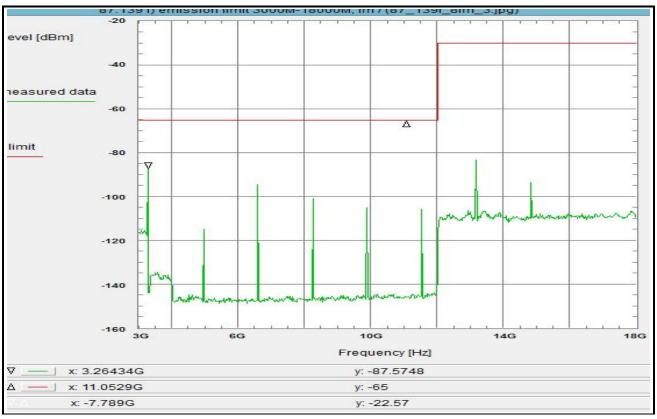


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|--|
| Emission limitations | Date & Time: Fri 10/Nov/2017 10:50:26 |
| Modulated rf-carrier in the middle of the band (fm) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| , | |
| | Temperature: 22 °C Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | vollago. |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.67 GHz |
| in accordance with 87.139(i)(1). | Stop frequency: 3 GHz |
| iii accordance with 07.133(i)(1). | Stop frequency: 3 GHz Center frequency: 2.335 GHz Frequency span: 1.33 GHz Resolution-BW: 3 kHz Video-BW: 10 kHz Input attenuation: 5 dB |
| | Frequency span: 1.33 GHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | VIGEO-BVV: IU KHZ |
| Test assults. | Input attenuation: 5 dB Trace-Mode: Clear Write |
| Test results: | |
| see plot (an explicit table was not generated) | Detector-Mode: Pos Peak |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 2, see subclause 1.5.2 | Directional coupler (WDLN) |
| A200/A300/A350, valid for all channels and modulations | Coaxial cable (C218) + 1.0 dB |
| | DUT-Antenna + 0.0 dBi |
| Test setup: | Test antenna |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Connector + 1.0 dB |
| Test equipment: | (FCOB) + 9.1 dB |
| see annex 2: C218, FCOB, R001, WDLN | TOTAL CORRECTION:17.9 dB |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier in the middle of the band (fm) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | |
| Test result. | |
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Plot No. 42 (50)

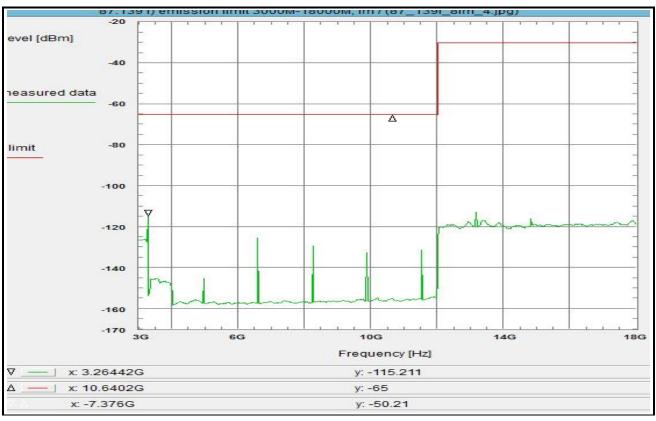


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Limit: Limit according to 87.139(i)(1) | Environment condition: Date & Time: Fri 10/Nov/2017 10:56:14 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 55 % Voltage: 28 Vdc |
|---|---|
| The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with 87.139(i)(1). | Setup of measurement equipment: Start frequency: Stop frequency: 18 GHz Center frequency: 10.5 GHz Frequency span: 15 GHz Resolution-BW: 10 kHz Video-BW: 30 kHz Input attenuation: 5 dB Trace-Mode: Clear Write Page Profe |
| Test results: see plot (an explicit table was not generated) | Trace-Mode: Clear Write Detector-Mode: Pos Peak |
| Operating condition of DUT: operating condition 2, see subclause 1.5.2 A200/A300/A350, valid for all channels and modulations Test setup: see section 8.1: 1.2hgl Test equipment: see annex 2: C218, FHPF, R001, WDLN | Correction: Directional coupler (WDLN) - 35.0 dB Coaxial cable (C218) + 2.0 dB DUT-Antenna + 0.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Connector + 1.0 dB (FHPF) + 0.7 dB TOTAL CORRECTION: - 35.3 dB |
| Remark: Test result: Test passed | Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: worst-case' = maximum antenna gain PEAK Detector |
| | |

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Plot No. 43 (50)

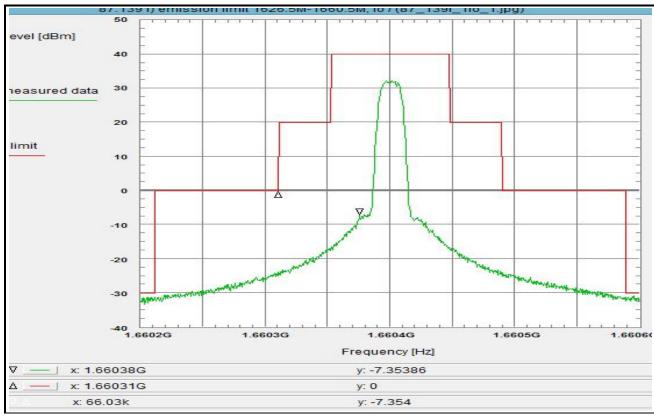


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) | Environment condition: Date & Time: Fri 10/Nov/2017 10:59:37 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 55 % Voltage: 28 Vdc |
|---|--|
| Limit according to 87.139(i)(1) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with 87.139(i)(1). | Setup of measurement equipment: Start frequency: 3 GHz Stop frequency: 18 GHz Center frequency: 10.5 GHz Frequency span: 15 GHz Resolution-BW: 10 kHz Video-BW: 30 kHz Input attenuation: 5 dB Trace-Mode: Max-Hold Detector-Mode: RMS |
| Test results: see plot (an explicit table was not generated) | Trace-Mode: Max-Hold Detector-Mode: RMS |
| Operating condition of DUT: operating condition 2, see subclause 1.5.2 A200/A300/A350, valid for all channels and modulations Test setup: see section 8.1: 1.2hgl Test equipment: see annex 2: C218, FHPF, R001, WDLN | Correction: Directional coupler (WDLN) - 35.0 dB Coaxial cable (C218) + 2.0 dB DUT-Antenna + 0.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Connector + 1.0 dB (FHPF) + 0.7 dB TOTAL CORRECTION: - 35.3 dB |
| Remark: Test result: Test passed | Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: 'worst-case' = maximum antenna gain RMS Detector |
| | |

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Plot No. 44 (50)

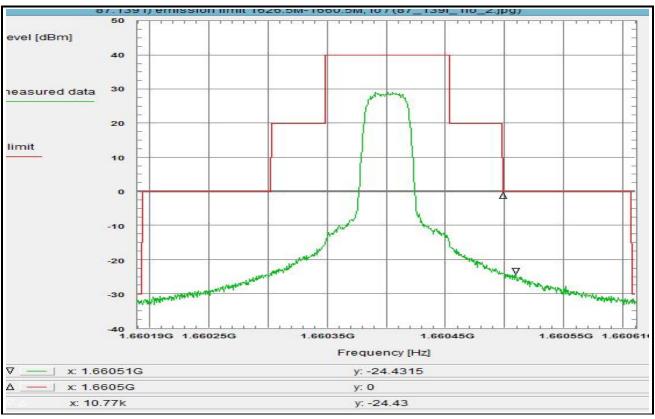


| Cubelance 97 (20 i) Fraguencies fraguency telegrapes and emission limitations | Environment condition: |
|---|--|
| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations | Environment condition: Date & Time: Thu 09/Nov/2017 16:23:00 |
| | |
| Modulated rf-carrier at the upper edge of the band (fh) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Humidity: 55 % |
| <u>Limit:</u> | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.6602 GHz |
| in accordance with 87.139(i)(1). | Stop frequency: 1.6606 GHz |
| | Center frequency: 1.6604 GHz |
| | Frequency span: 400 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Input attenuation: 5 dB |
| Test results: | Start trequency: 1.6002 GHz |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Direction Dire |
| A200/A300/A350, fh, QPSK, 21 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Atten. between HPA and feedhom - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier at the upper edge of the band (fo) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | <u> </u> |
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Plot No. 45 (50)

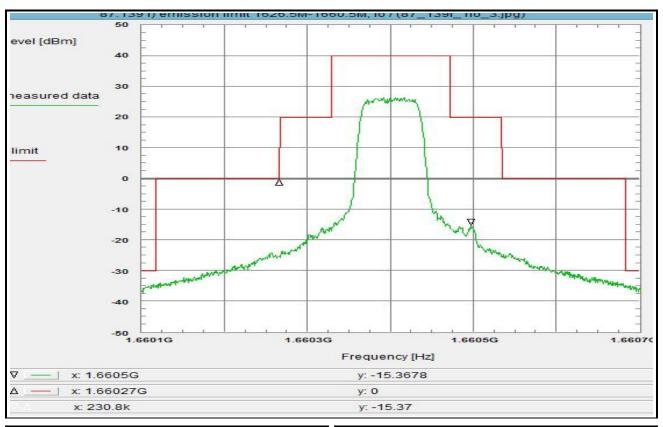


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|--|
| Subclause. 67.1591) Frequencies, frequency tolerance and emission limitations Emission limitations | Date & Time: Thu 09/Nov/2017 17:10:27 |
| Modulated rf-carrier at the upper edge of the band (fh) | |
| iviodulated in-carrier at the upper edge of the band (in) | Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C |
| | |
| | Humidity: 55 % |
| <u>Limit:</u> | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.66019 GHz |
| in accordance with 87.139(i)(1). | Stop frequency: 1.66061 GHz |
| | Center frequency: 1.6604 GHz |
| | Frequency span: 420 kHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Start frequency: 1.66019 GHz |
| Test results: | Trace-Mode: Average |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler |
| A200/A300/A350, fh, QPSK, 42 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| , and the second | Atten, between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier at the upper edge of the band (fo) |
| | For EIRP calculation: |
| | worst-case' = maximum antenna gain |
| Test result: Test passed | · · |
| TOOL PROOCE | |
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Plot No. 46 (50)

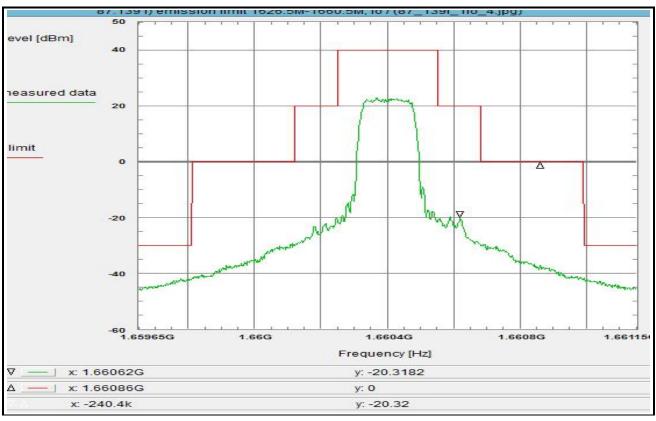


| <u>Subclause:</u> 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fh) | Environment condition: Date & Time: Thu 09/Nov/2017 17:24:07 Location: CTC advanced GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 55 % |
|---|---|
| Limit: Limit according to 87.139(i)(1) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with 87.139(i)(1). | Voltage: 28 Vdc Setup of measurement equipment: Start frequency: 1.6601 GHz Stop frequency: 1.6607 GHz Center frequency: 1.6604 GHz Frequency span: 600 kHz Resolution-BW: 3 kHz Video BW: 10 kHz |
| <u>Test results:</u> see plot (an explicit table was not generated) | Video-Byv. 10 Ki12 |
| Operating condition of DUT: operating condition 1, see subclause 1.5.2 A200/A300/A350, fh, QPSK, 42 kHz Test setup: see section 8.1: 1.2hgl Test equipment: see annex 2: C218, R001, U005 | Correction: Directional coupler + 0.0 dB Coaxial cable (C218) + 0.8 dB DUT-Antenna (on-axis) + 0.0 dB Test antenna + 0.0 dB BW correction factor (3k -> 4k) + 1.2 dB Atten. between HPA and feedhorn (U005) + 29.8 dB TOTAL CORRECTION: + 31.8 dB |
| Remark: Test result: Test passed | Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: 'worst-case' = maximum antenna gain |
| | |

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Plot No. 47 (50)

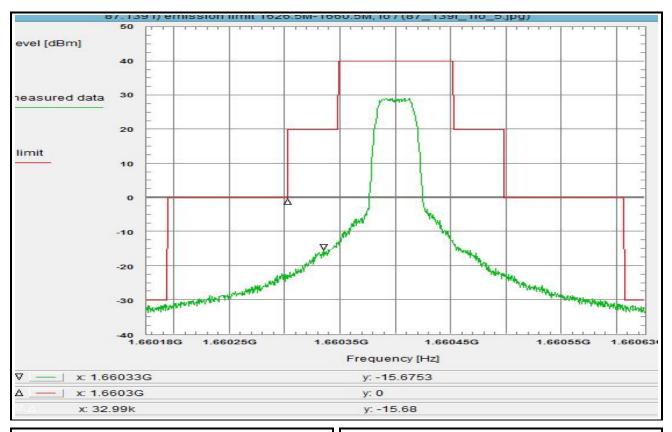


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
|--|--|
| Emission limitations | Date & Time: Thu 09/Nov/2017 17:47:27 |
| Modulated rf-carrier at the upper edge of the band (fh) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| iniodulated if earner at the appear edge of the band (in) | Temperature: 22 °C |
| | Humidity: 55 % |
| Limit: | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | 25 740 |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | |
| in accordance with 87.139(i)(1). | Stop frequency: 1.66115 GHz |
| ······ | Center frequency: 1.6604 GHz |
| | Frequency span: 1.5 MHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | Start frequency: |
| Test results: | Trace-Mode: Average |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| , | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler + 0.0 dB |
| A200/A300/A350, fh, QPSK, 189 kHz | One cuton: One |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Atten. between HPA and feedhorn - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | (U005) + 29.8 dB TOTAL CORRECTION: + 31.8 dB |
| | |
| Remark: | Remarks: |
| | Carrier-on state / Carrier at the upper edge of the band (fo) |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | |
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Plot No. 48 (50)

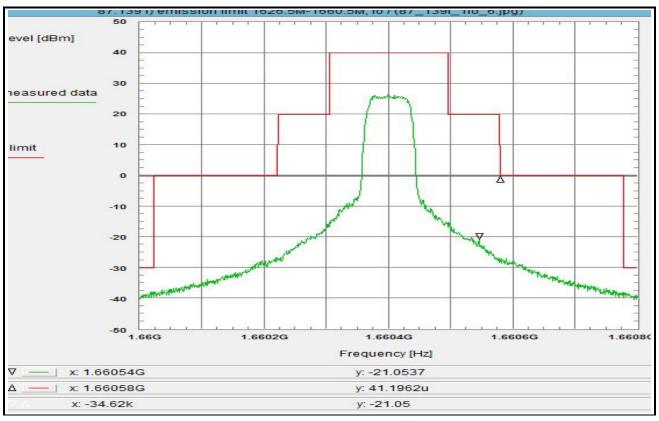


| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: | | |
|--|---|--|--|
| Emission limitations | Date & Time: Thu 09/Nov/2017 18:02:10 | | |
| Modulated rf-carrier at the upper edge of the band (fh) | Location: CTC advanced GmbH, Laboratory RSC-Sat | | |
| | Temperature: 22 °C | | |
| | Humidity: 55 % | | |
| Limit: | Voltage: 28 Vdc | | |
| Limit according to 87.139(i)(1) | | | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: | | |
| below the mean output power of the transmitter | Ctart fraguency: 1 CC017E CH- | | |
| in accordance with 87.139(i)(1). | Stop frequency: 1.660625 GHz | | |
| \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | Center frequency: 1.6604 GHz | | |
| | Staff Hequency: 1.600625 GHz | | |
| | Resolution-BW: 3 kHz | | |
| | Video-BW: 10 kHz | | |
| | Input attenuation: 5 dB | | |
| Test results: | Trace-Mode: Average | | |
| see plot (an explicit table was not generated) | Detector-Mode: AVG | | |
| | | | |
| Operating condition of DUT: | Correction: | | |
| operating condition 1, see subclause 1.5.2 | Directional coupler | | |
| A200/A300/A350, fh, 16QAM, 42 kHz | Coaxial cable (C218) + 0.8 dB | | |
| 7 2507 15507 1550, 111, 12 10 12 | DLIT-Antenna (on-axis) + 0.0 dBi | | |
| Test setup: | Test antenna + 0.0 dB | | |
| see section 8.1: 1.2hql | BW correction factor (3k -> 4k) + 1.2 dB | | |
| 300 3000001 0.1. 1.21igi | Atten. between HPA and feedhom - 0.0 dB | | |
| Test equipment: | (U005) + 29.8 dB | | |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB | | |
| See alliex 2. G210, N001, 0000 | TOTAL CORRECTION. 7 31.0 db | | |
| Remark: | Remarks: | | |
| Normalk. | Carrier-on state / Carrier at the upper edge of the band (fo) | | |
| | For EIRP calculation: | | |
| | worst-case' = maximum antenna gain | | |
| Total and the Total and the | worst-case – maximum antenna gam | | |
| Test result: Test passed | | | |
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Plot No. 49 (50)

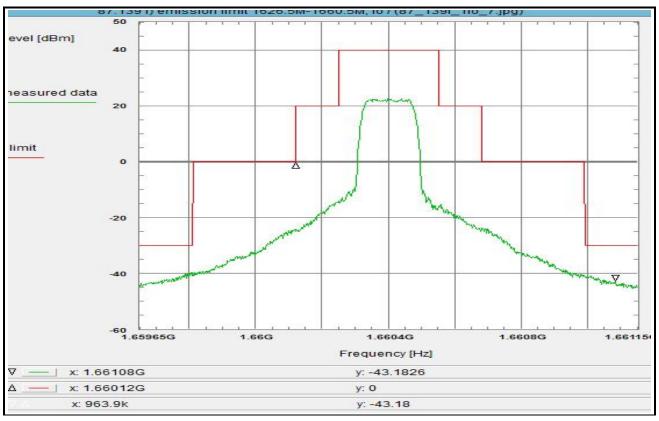


| | e |
|--|---|
| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
| Emission limitations | Date & Time: Thu 09/Nov/2017 18:21:55 |
| Modulated rf-carrier at the upper edge of the band (fh) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Humidity: 55 % |
| <u>Limit:</u> | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.66 GHz |
| in accordance with 87.139(i)(1). | Stop frequency: 1.6608 GHz |
| | Center frequency: 1.6604 GHz |
| | Frequency span: 800 kHz |
| | Resolution-BW: 3 kHz |
| | Stop frequency: 1.6608 GHz Center frequency: 1.6604 GHz Frequency span: 800 kHz Resolution-BW: 3 kHz Video-BW: 10 kHz |
| To Locality | Input attenuation: 5 dB |
| Test results: | Trace-Mode: Average |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| 0 6 66 600 | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler |
| A200/A300/A350, fh, 16QAM, 84 kHz | Coaxial cable (C218) + 0.8 dB |
| Total a | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | rest antenna + 0.0 dB |
| see section 8.1: 1.2hgl | Atten, between HPA and feedhorn - 0.0 dB |
| Took and describe | (U005) - 0.0 dB + 29.8 dB |
| Test equipment: see annex 2: C218, R001, U005 | (0005) + 29.8 dB TOTAL CORRECTION: + 31.8 dB |
| see annex 2: G218, R001, 0005 | TOTAL CORRECTION: + 31.6 dB |
| Remark: | Remarks: |
| Neman. | Carrier-on state / Carrier at the upper edge of the band (fo) |
| | For EIRP calculation: |
| | worst-case' = maximum antenna gain |
| Test result: Test passed | worst-case - maximum unterma gain |
| rest result: Test passed | |
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Plot No. 50 (50)



| | E : |
|--|--|
| Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations | Environment condition: |
| Emission limitations | Date & Time: Thu 09/Nov/2017 18:32:14 |
| Modulated rf-carrier at the upper edge of the band (fh) | Location: CTC advanced GmbH, Laboratory RSC-Sat |
| | Temperature: 22 °C |
| | Humidity: 55 % |
| <u>Limit:</u> | Voltage: 28 Vdc |
| Limit according to 87.139(i)(1) | |
| The mean power of emissions shall be attenuated | Setup of measurement equipment: |
| below the mean output power of the transmitter | Start frequency: 1.65965 GHz |
| in accordance with 87.139(i)(1). | Start requency: 1.059905 GFIZ |
| | Center frequency: 1.6604 GHz |
| | Frequency span: 1.5 MHz |
| | Resolution-BW: 3 kHz |
| | Video-BW: 10 kHz |
| | |
| Test results: | Trace-Mode: Average |
| see plot (an explicit table was not generated) | Detector-Mode: AVG |
| | |
| Operating condition of DUT: | Correction: |
| operating condition 1, see subclause 1.5.2 | Directional coupler |
| A200/A300/A350, fh, 16QAM, 189 kHz | Coaxial cable (C218) + 0.8 dB |
| | DUT-Antenna (on-axis) + 0.0 dBi |
| Test setup: | Test antenna + 0.0 dB |
| see section 8.1: 1.2hgl | BW correction factor (3k -> 4k) + 1.2 dB |
| | Atten. between HPA and feedhom - 0.0 dB |
| Test equipment: | (U005) + 29.8 dB |
| see annex 2: C218, R001, U005 | TOTAL CORRECTION: + 31.8 dB |
| Description | D |
| Remark: | Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) |
| | |
| | For EIRP calculation: |
| | 'worst-case' = maximum antenna gain |
| Test result: Test passed | |
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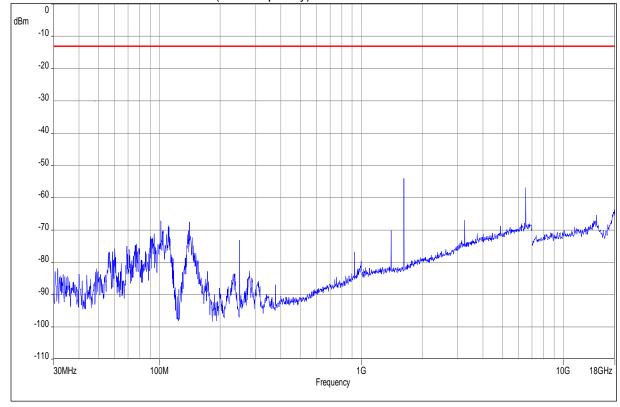
3 Measurement results, Spurious emissions 30MHz - 18 GHz

This Chapter 3 consists of 3 pages including this page.

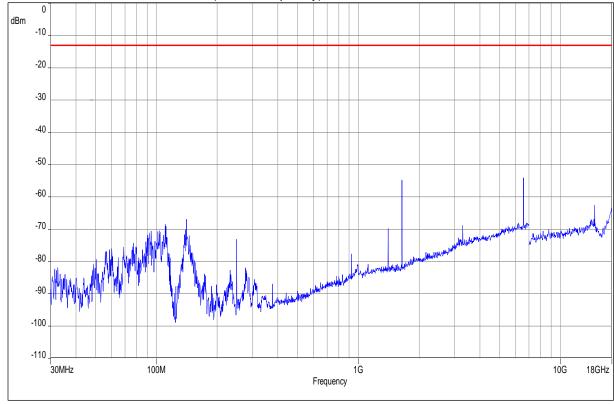
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Plot No. 1: antenna vertical / horizontal (Low frequency)

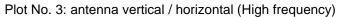


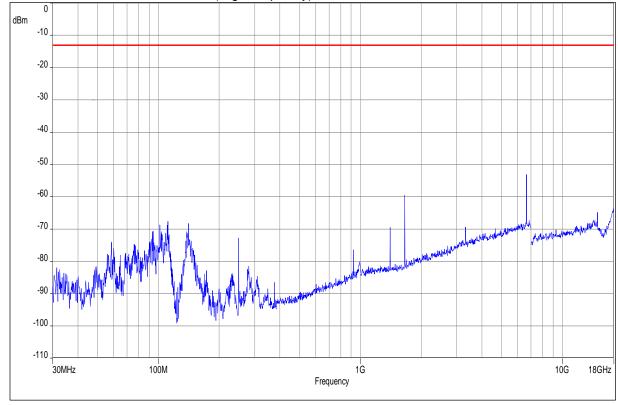
Plot No. 2: antenna vertical / horizontal (Middle frequency)



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4 Measurement results, FCC Part 15B

This Chapter 4 consists of 1 pages including this page.

Refer to test report 1-0716_15-01-05.pdf

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5 Document history

| Version | Applied changes | Date of release |
|---------|-------------------------|-----------------|
| | Initial release - DRAFT | 2018-03-20- |
| | minor editorial changes | 2018-06-22 |

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