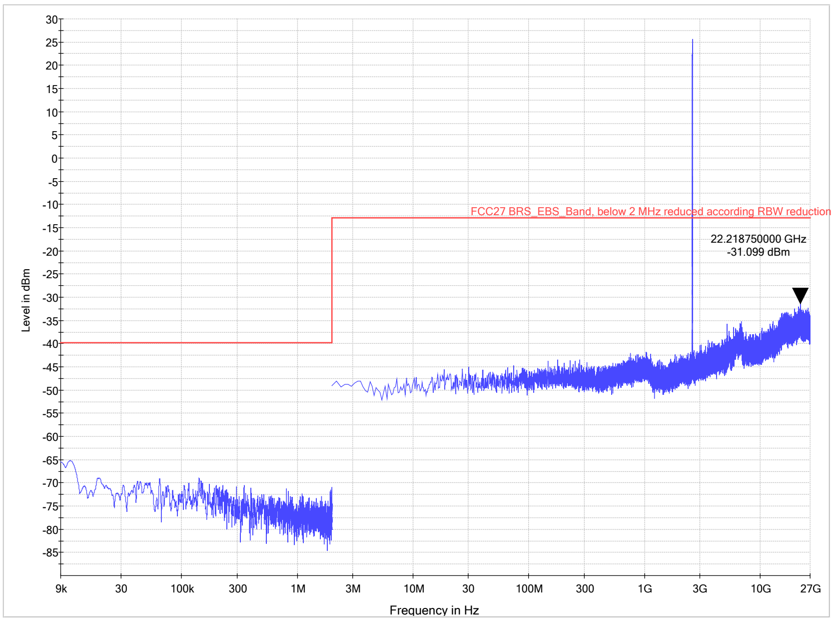
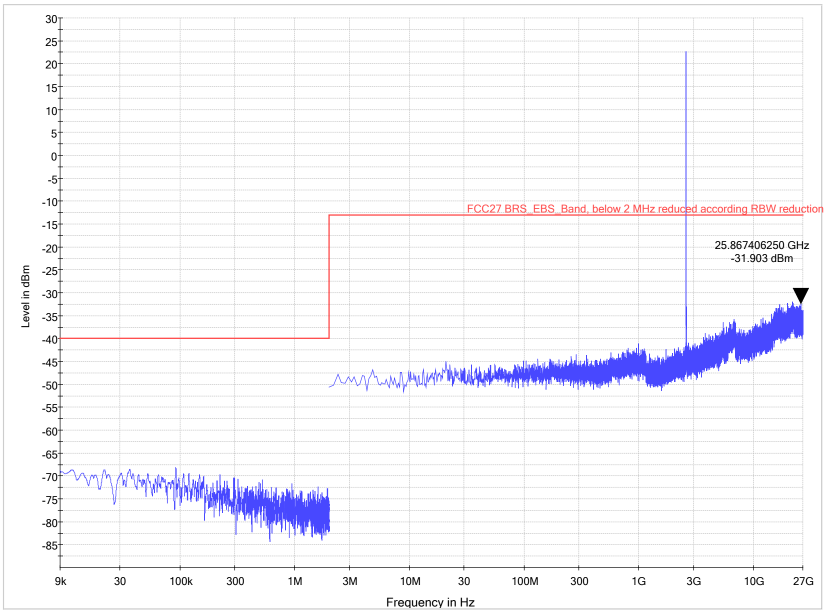
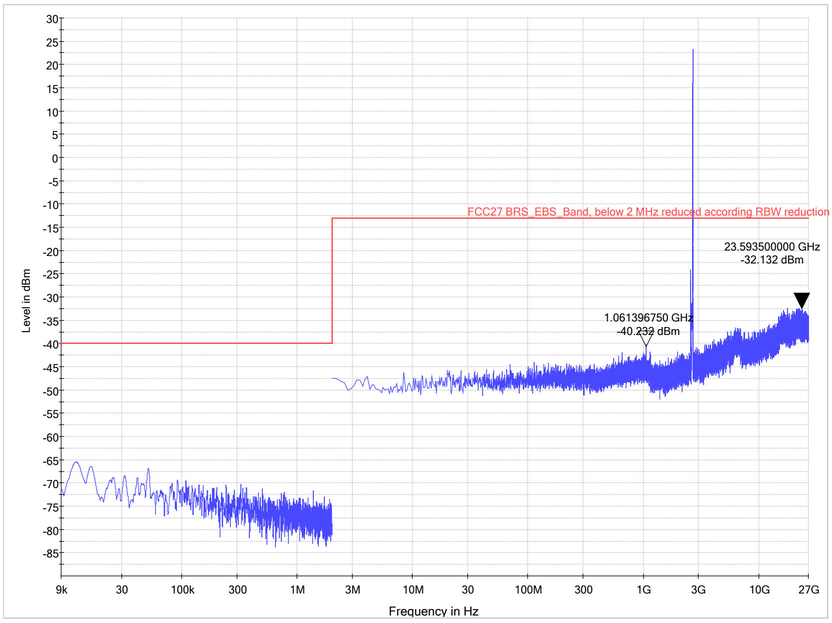
Frequency Band = Band 41 (BRS Mid), Test Frequency = mid,
Direction = RF downlink, Signal Type = Wideband
(S01_AA01)



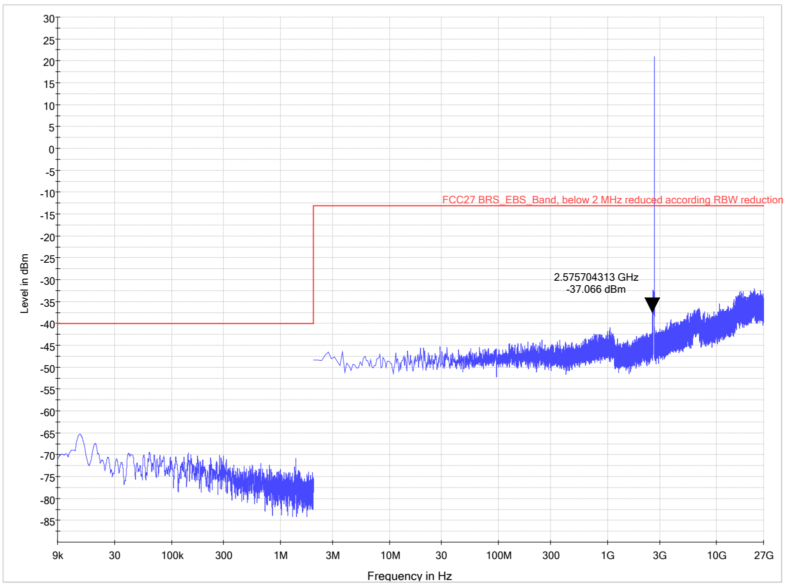
Frequency Band = Band 41 (BRS Mid), Test Frequency = mid,
Direction = RF downlink, Signal Type = Narrowband
(S01_AA01)



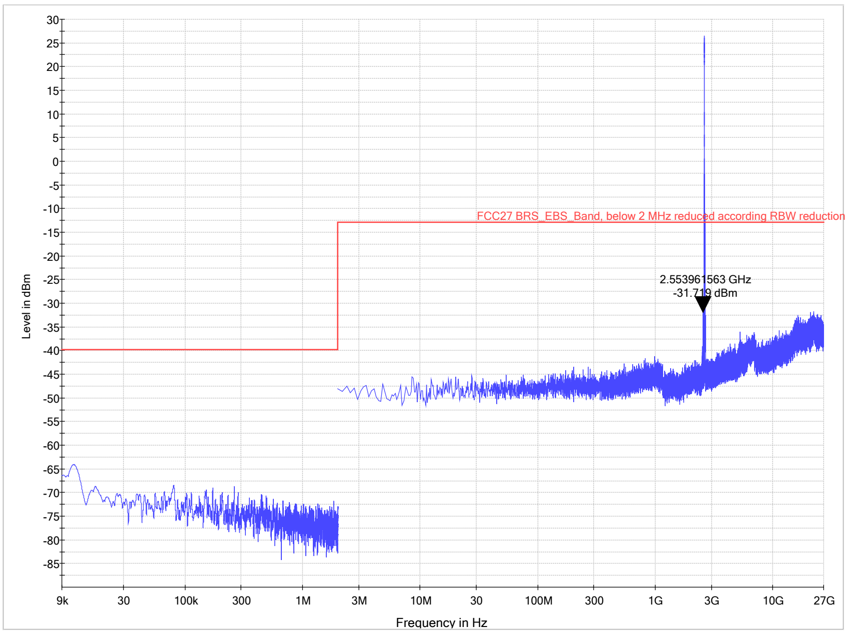
Frequency Band = Band 41 (BRS High), Test Frequency = high,
Direction = RF downlink, Signal Type = Wideband
(S01_AA01)



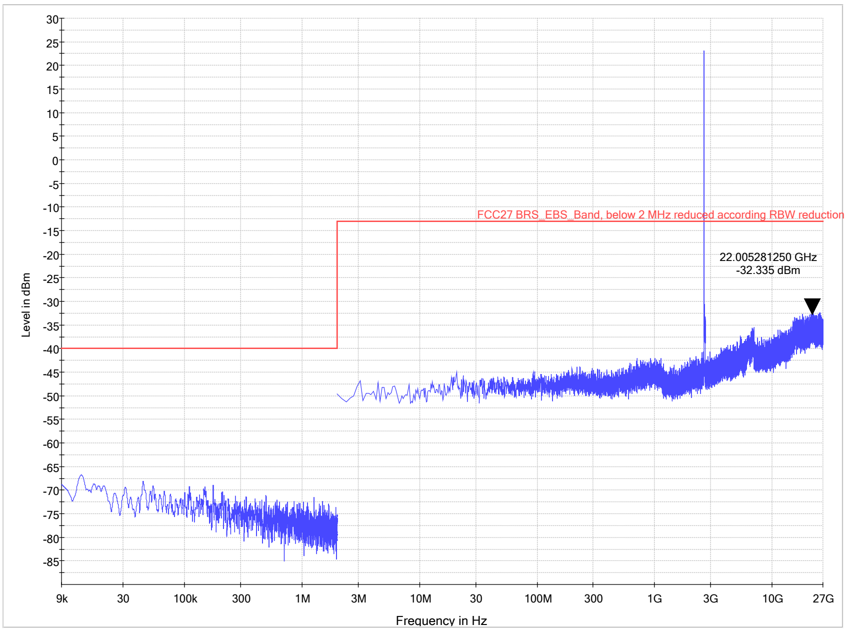
Frequency Band = Band 41 (BRS High), Test Frequency = high,
Direction = RF downlink, Signal Type = Narrowband
(S01_AA01)



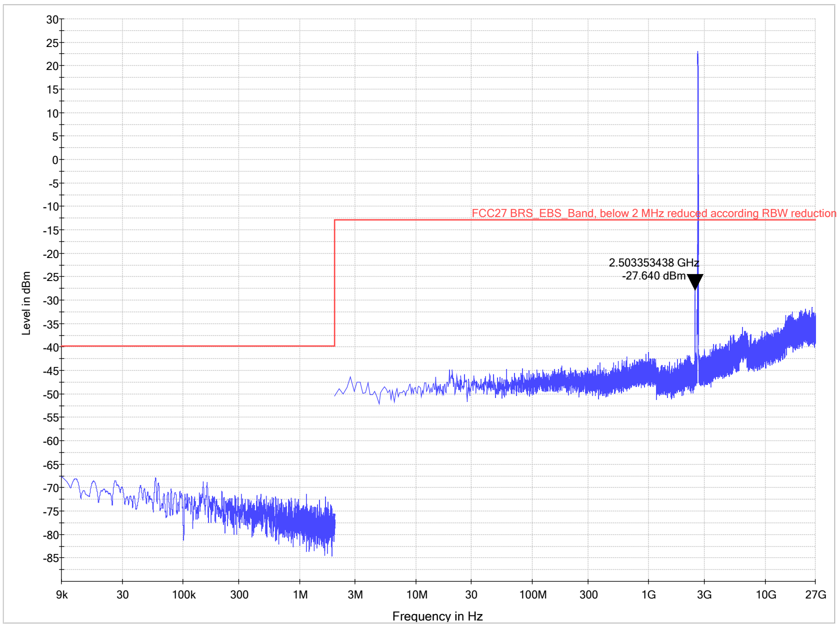
Frequency Band = Band 41 (BRS High), Test Frequency = low, Direction = RF downlink, Signal Type = Wideband (S01_AA01)



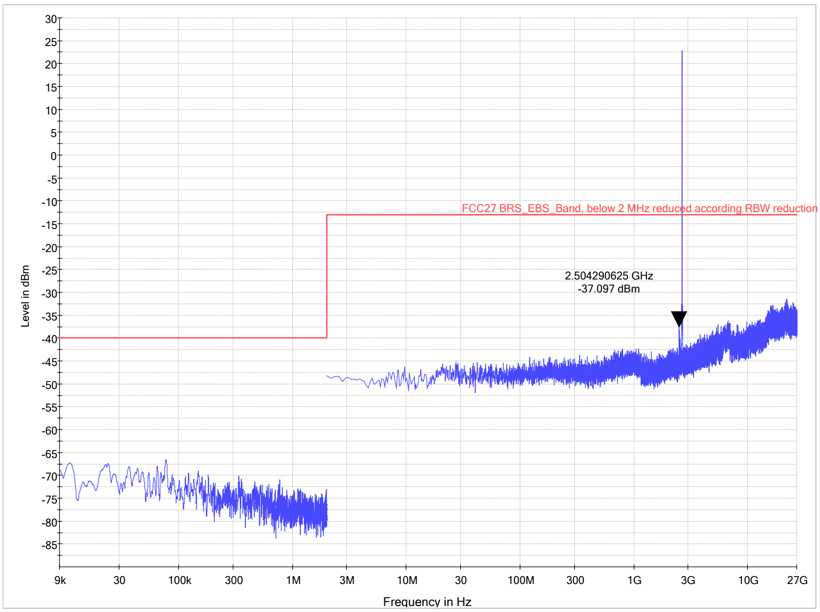
Frequency Band = Band 41 (BRS High), Test Frequency = low, Direction = RF downlink, Signal Type = Narrowband (S01_AA01)



Frequency Band = Band 41 (BRS High), Test Frequency = mid,
Direction = RF downlink, Signal Type = Wideband
(S01_AA01)



Frequency Band = Band 41 (BRS High), Test Frequency = mid,
Direction = RF downlink, Signal Type = Narrowband
(S01_AA01)



4.4.5 TEST EQUIPMENT USED

- R&S TS8997

4.5 OUT-OF-BAND EMISSION LIMITS

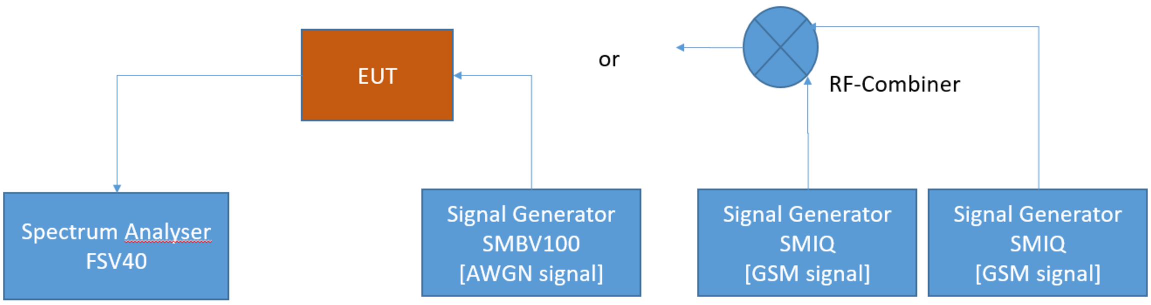
Standard FCC Part §2.1051, §27.53

The test was performed according to:
ANSI C63.26, KDB 935210 D05 v01r02: 3.6

4.5.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the out-of-band emission limit for industrial signal boosters. The limits itself come from the applicable rule part for each operating band.

The EUT was connected to the test setup according to the following diagram:



FCC Part 22/24/27/90 Industrial signal booster – Test Setup; Out-of-band emissions

The attenuation of the measuring and stimulus path are known for each measured frequency and are considered.

The Spectrum Analyzer settings can be directly found in the measurement diagrams.

4.5.2 TEST REQUIREMENTS / LIMITS

Part 27; Miscellaneous Wireless Communication Services

Subpart C – Technical standards

§27.53 – Emission limits

Band 13

(c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

Band 12:

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Band 4:

(h) *AWS emission limits*—(1) *General protection levels.* Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 $\log_{10}$ (P) dB.

Band 41 BRS (LBS/MBS/UBS):

(m) For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts in accordance with the standards below. If a licensee has multiple contiguous channels, out-of-band emissions shall be measured from the upper and lower edges of the contiguous channels.

(1) Prior to the transition, and thereafter, solely within the MBS, for analog operations with an EIRP in excess of −9 dBW, the signal shall be attenuated at the channel edges by at least 38 dB relative to the peak visual carrier, then linearly sloping from that level to at least 60 dB of attenuation at 1 MHz below the lower band edge and 0.5 MHz above the upper band edge, and attenuated at least 60 dB at all other frequencies.

(2) For digital base stations, the attenuation shall be not less than 43 + 10 log (P) dB, unless a documented interference complaint is received from an adjacent channel licensee with an overlapping Geographic Service Area. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS No. 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

RSS-130; 4.6 Transmitter Unwanted Emissions

4.6.1 The power of any unwanted emissions in any 100 kHz bandwidth on any frequency outside the frequency range(s) within which the equipment is designed to operate shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 $\log_{10}$ p (watts), dB. However, in the 100 kHz band immediately outside the equipment's operating frequency range, a resolution bandwidth of 30 kHz may be employed.

4.6.2 In addition to the limit outlined in Section 4.6.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

- (a) The power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:
  - (i) 76 + 10 $\log_{10}$ p (watts), dB, for base and fixed equipment, and
  - (ii) 65 + 10 $\log_{10}$ p (watts), dB, for mobile and portable equipment.
- (b) The e.i.r.p. in the band 1559-1610 MHz shall not exceed −70 dBW/MHz for wideband signal and −80 dBW for discrete emission with bandwidth less than 700 Hz.

RSS-139; 6.6 Transmitter Unwanted Emissions

Equipment shall comply with the limits in (i) and (ii) below.

i. In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 $\log_{10}$ p (watts) dB.
ii. After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 $\log_{10}$ p (watts) dB.

RSS-199; 4.5 Transmitter Unwanted Emissions

Equipment shall comply with the following unwanted emission limits:

for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least 43 + 10 $\log_{10}$ p

1. for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:
   1. 40 + 10 $\log_{10}$ p from the channel edges to 5 MHz away
   2. 43 + 10 $\log_{10}$ p between 5 MHz and X MHz from the channel edges, and
   3. 55 + 10 $\log_{10}$ p at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than 43 + 10 $\log_{10}$ p on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 $\log_{10}$ p at or below 2490.5 MHz.

In (a) and (b), **p** is the transmitter power measured in watts and **X** is 6 MHz or the equipment occupied bandwidth, whichever is greater.

4.5.3 TEST PROTOCOL

Band 41 BRS Low, downlink, Number of input signals = 1							
Signal Type	Input Power	Band Edge	Signal Frequency [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
Wideband	0.3 dB < AGC	upper	2565.50	11.7	-41.5	-13.0	28.5
Wideband	3 dB > AGC	upper	2565.50	15.0	-39.2	-13.0	26.2
Narrowband	0.3 dB < AGC	upper	2567.80	11.7	-55.7	-13.0	42.7
Narrowband	3 dB > AGC	upper	2567.80	15.0	-55.5	-13.0	42.5
Wideband	0.3 dB < AGC	lower	2498.50	11.7	-28.0	-13.0	15.0
Wideband	3 dB > AGC	lower	2498.50	15.0	-28.8	-13.0	15.8
Narrowband	0.3 dB < AGC	lower	2496.20	11.7	-49.9	-13.0	36.9
Narrowband	3 dB > AGC	lower	2496.20	15.0	-52.0	-13.0	39.0

Band 41 BRS Low, downlink, Number of input signals = 2								
Signal Type	Input Power	Band Edge	Signal Frequency f1 [MHz]	Signal Frequency f2 [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
WB	0.3 dB < AGC	upper	2565.50	2560.50	11.7	-29.0	-13.0	16.0
WB	3 dB > AGC	upper	2565.50	2560.50	15.0	-32.5	-13.0	19.5
NB	0.3 dB < AGC	upper	2567.80	2567.60	11.7	-42.0	-13.0	29.0
NB	3 dB > AGC	upper	2567.80	2567.60	15.0	-43.8	-13.0	30.8
WB	0.3 dB < AGC	lower	2498.50	2503.50	11.7	-29.1	-13.0	16.1
WB	3 dB > AGC	lower	2498.50	2503.50	15.0	-25.1	-13.0	12.1
NB	0.3 dB < AGC	lower	2496.20	2496.40	11.7	-38.5	-13.0	25.5
NB	3 dB > AGC	lower	2496.20	2496.40	15.0	-38.0	-13.0	25.0

Band 41 BRS Mid, downlink, Number of input signals = 1							
Signal Type	Input Power	Band Edge	Signal Frequency [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
Wideband	0.3 dB < AGC	upper	2611.50	11.7	-36.7	-13.0	23.7
Wideband	3 dB > AGC	upper	2611.50	15.0	-36.0	-13.0	23.0
Narrowband	0.3 dB < AGC	upper	2613.80	11.7	-34.9	-13.0	21.9
Narrowband	3 dB > AGC	upper	2613.80	15.0	-34.7	-13.0	21.7
Wideband	0.3 dB < AGC	lower	2616.50	11.7	-30.6	-13.0	17.6
Wideband	3 dB > AGC	lower	2616.50	15.0	-30.8	-13.0	17.8
Narrowband	0.3 dB < AGC	lower	2614.20	11.7	-34.2	-13.0	21.2
Narrowband	3 dB > AGC	lower	2614.20	15.0	-33.8	-13.0	20.8

Band 41 BRS Mid, downlink, Number of input signals = 2								
Signal Type	Input Power	Band Edge	Signal Frequency f1 [MHz]	Signal Frequency f2 [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
WB	0.3 dB < AGC	upper	2611.50	2609.00	11.7	-32.4	-13.0	19.4
WB	3 dB > AGC	upper	2611.50	2609.00	15.0	-31.9	-13.0	18.9
NB	0.3 dB < AGC	upper	2613.80	2613.60	11.7	-34.4	-13.0	21.4
NB	3 dB > AGC	upper	2613.80	2613.60	15.0	-34.3	-13.0	21.3
WB	0.3 dB < AGC	lower	2616.50	2577.00	11.7	-25.8	-13.0	12.8
WB	3 dB > AGC	lower	2616.50	2577.00	15.0	-27.0	-13.0	14.0
NB	0.3 dB < AGC	lower	2614.20	2572.40	11.7	-32.8	-13.0	19.8
NB	3 dB > AGC	lower	2614.20	2572.40	15.0	-32.8	-13.0	19.8

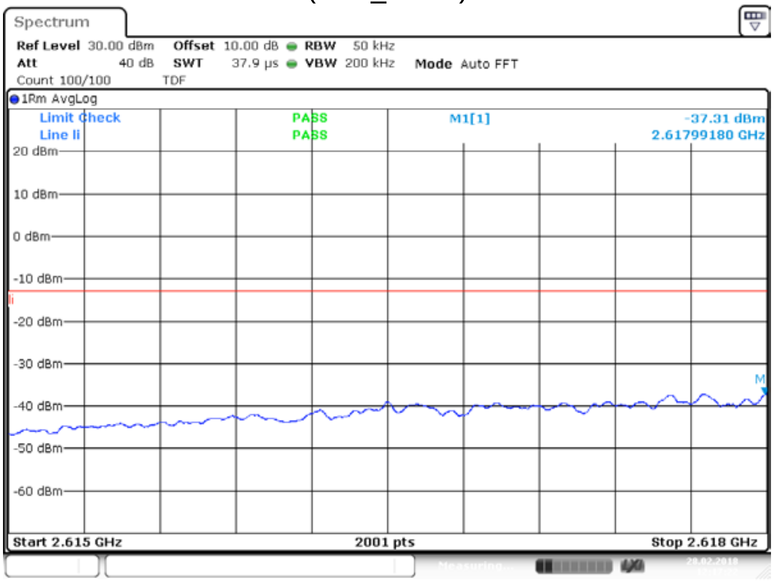
Band 41 BRS High, downlink, Number of input signals = 1							
Signal Type	Input Power	Band Edge	Signal Frequency [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
Wideband	0.3 dB < AGC	upper	2687.50	11.7	-42.0	-13.0	29.0
Wideband	3 dB > AGC	upper	2687.50	15.0	-43.1	-13.0	30.1
Narrowband	0.3 dB < AGC	upper	2689.80	11.7	-44.1	-13.0	31.1
Narrowband	3 dB > AGC	upper	2689.80	15.0	-44.1	-13.0	31.1
Wideband	0.3 dB < AGC	lower	2620.50	11.7	-35.1	-13.0	22.1
Wideband	3 dB > AGC	lower	2620.50	15.0	-37.3	-13.0	24.3
Narrowband	0.3 dB < AGC	lower	2618.20	11.7	-41.3	-13.0	28.3
Narrowband	3 dB > AGC	lower	2618.20	15.0	-40.8	-13.0	27.8

Band 41 BRS High, downlink, Number of input signals = 2								
Signal Type	Input Power	Band Edge	Signal Frequency f1 [MHz]	Signal Frequency f2 [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
WB	0.3 dB < AGC	upper	2687.50	2682.50	11.7	-42.5	-13.0	29.5
WB	3 dB > AGC	upper	2687.50	2682.50	15.0	-38.4	-13.0	25.4
NB	0.3 dB < AGC	upper	2689.80	2689.60	11.7	-43.2	-13.0	30.2
NB	3 dB > AGC	upper	2689.80	2689.60	15.0	-44.3	-13.0	31.3
WB	0.3 dB < AGC	lower	2620.50	2625.50	11.7	-28.7	-13.0	15.7
WB	3 dB > AGC	lower	2620.50	2625.50	15.0	-26.7	-13.0	13.7
NB	0.3 dB < AGC	lower	2618.20	2618.40	11.7	-39.9	-13.0	26.9
NB	3 dB > AGC	lower	2618.20	2618.40	15.0	-38.9	-13.0	25.9

Remark: Please see next sub-clause for the measurement plot.

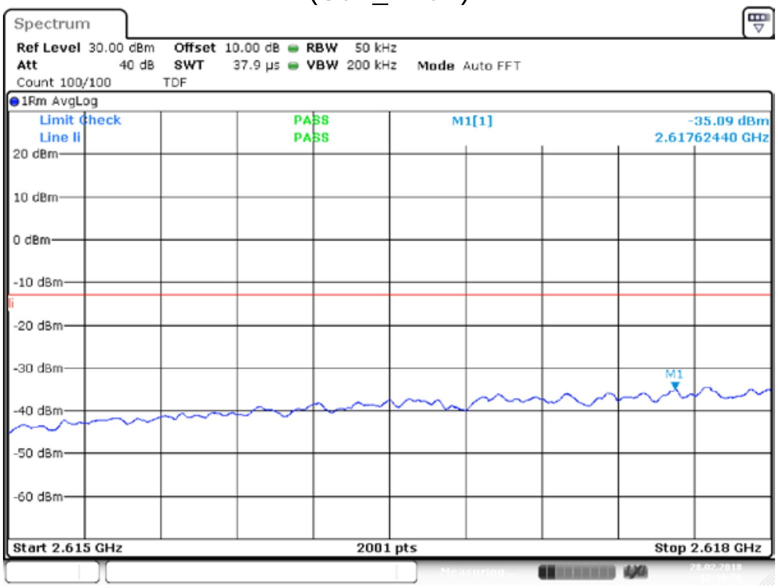
4.5.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

Band Edge = Lower, Frequency Band = Band 41 (BRS High), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



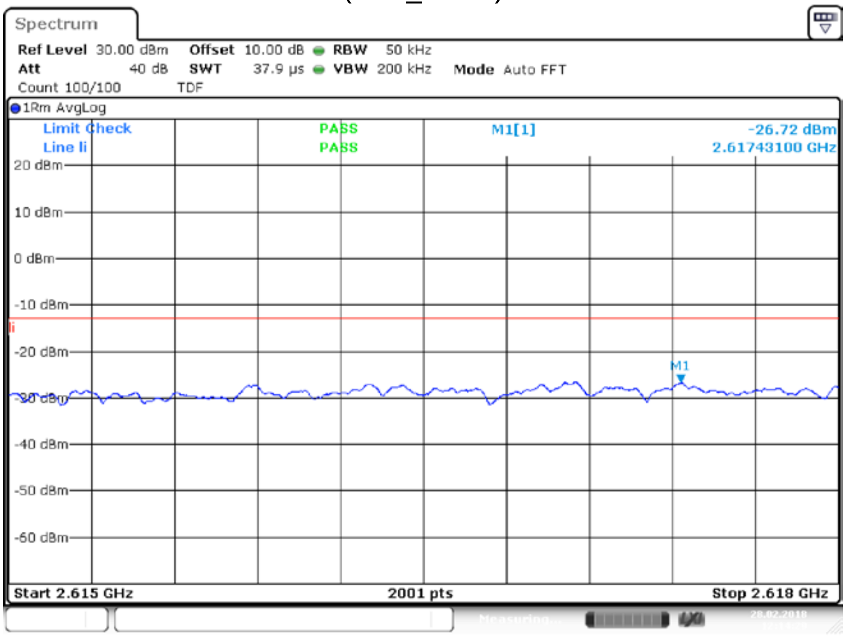
out of band emi;BRS High;AWGN;lower;1 carrier +3 dB;2.615G;2.618G

Band Edge = Lower, Frequency Band = Band 41 (BRS High), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



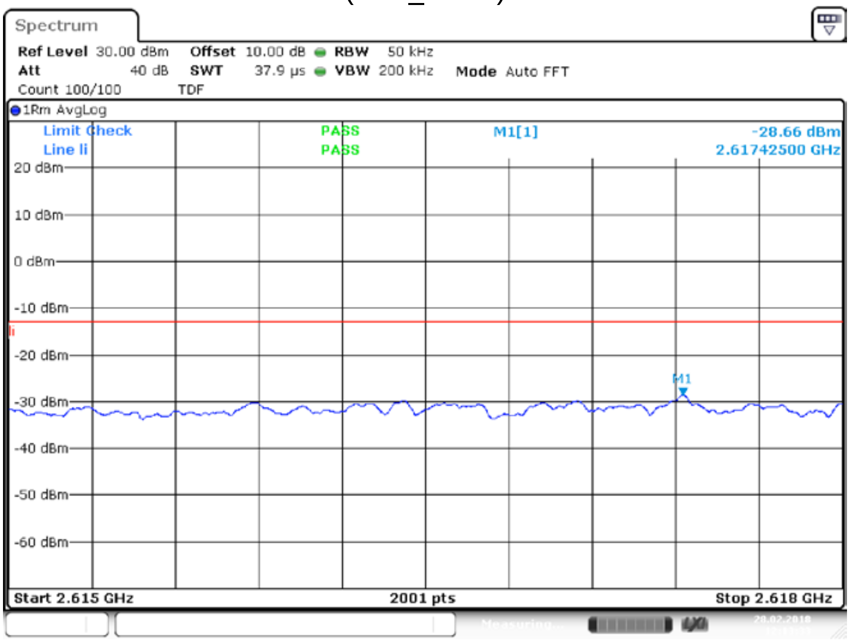
out of band emi;BRS High;AWGN;lower;1 carrier -0.3 dB;2.615G;2.618G

Band Edge = Lower, Frequency Band = Band 41 (BRS High), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



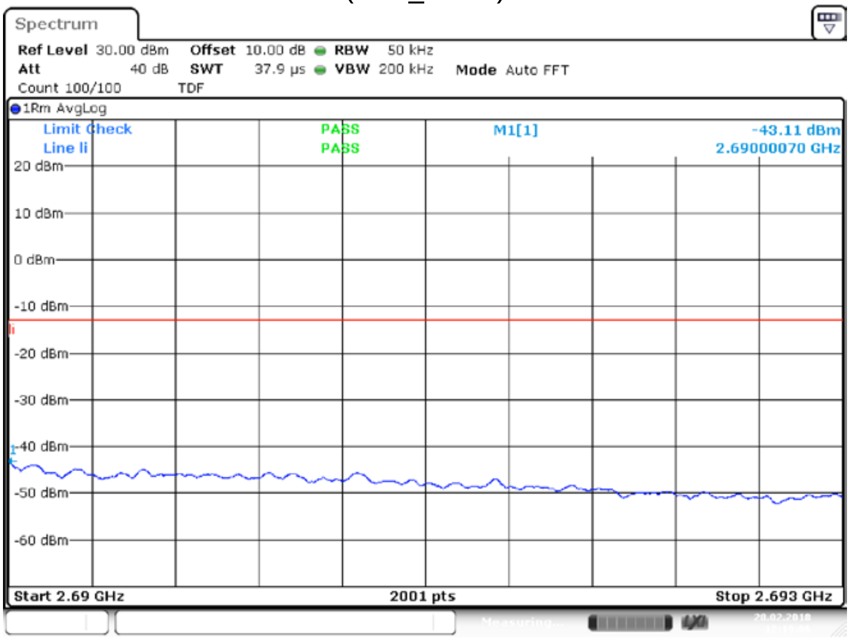
out of band emi;BRS High;AWGN;lower;2 carriers +3 dB;2.615G;
2.618G

Band Edge = Lower, Frequency Band = Band 41 (BRS High), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



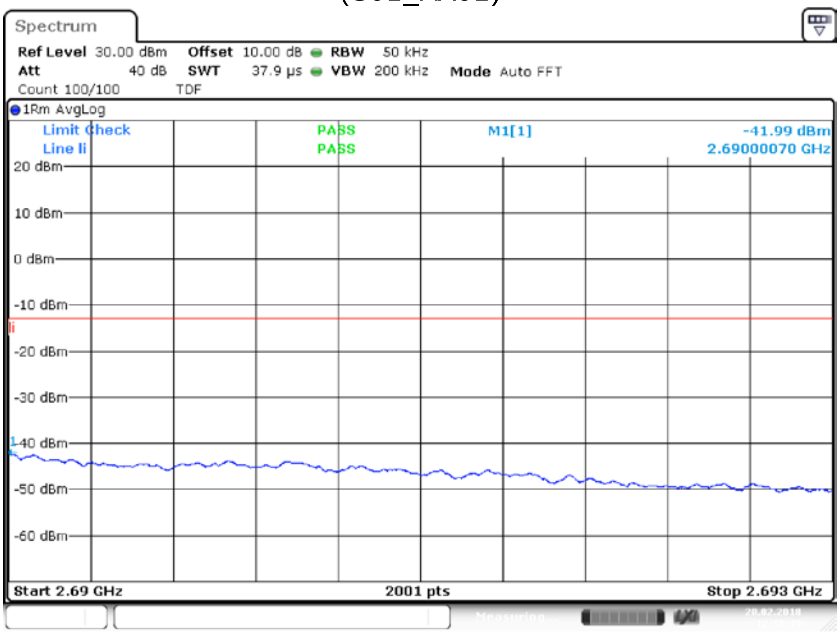
out of band emi;BRS High;AWGN;lower;2 carriers -0.3 dB;2.615
G;2.618G

Band Edge = Upper, Frequency Band = Band 41 (BRS High), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



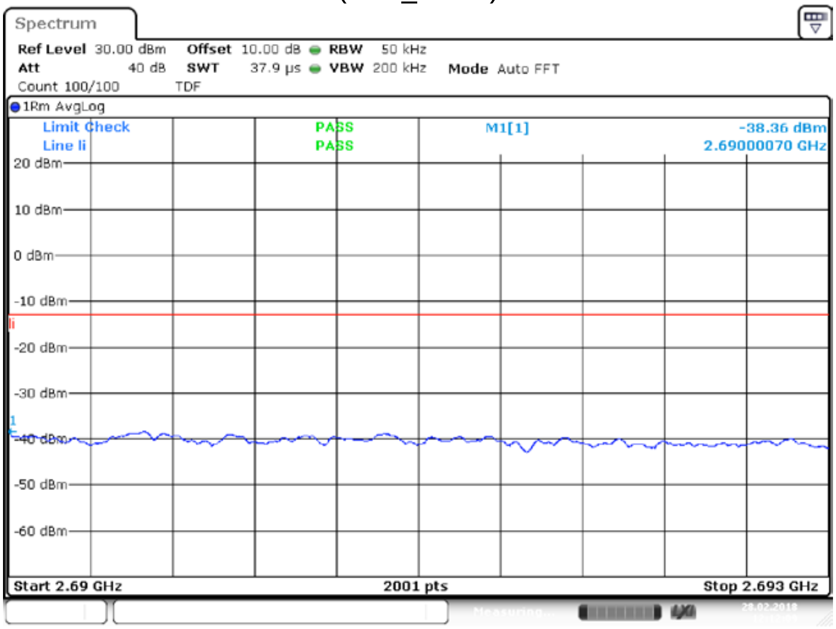
out of band emi;BRS High;AWGN;upper;1 carrier +3 dB;2.690G;2
.693G

Band Edge = Upper, Frequency Band = Band 41 (BRS High), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



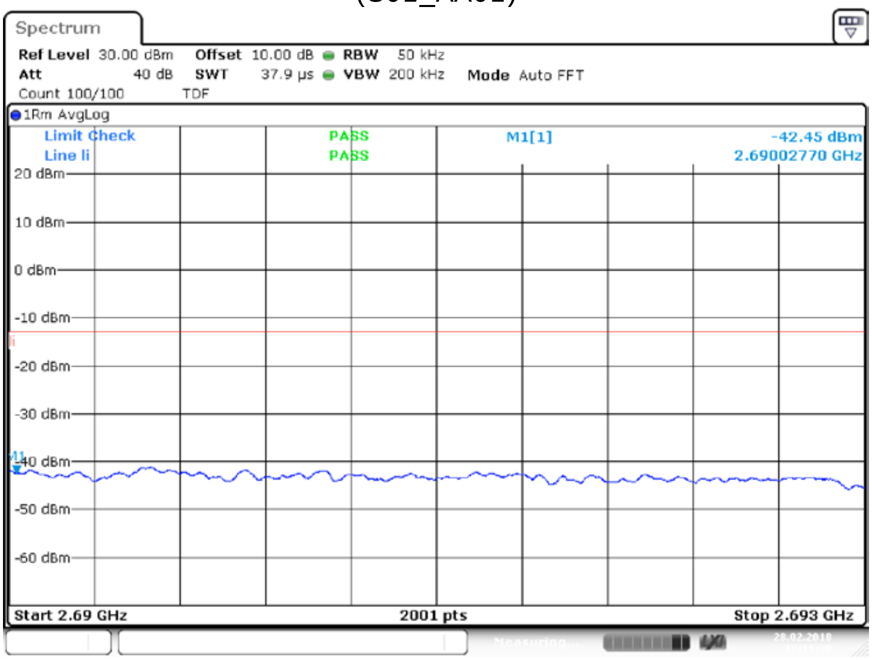
out of band emi;BRS High;AWGN;upper;1 carrier -0.3 dB;2.690G
;2.693G

Band Edge = Upper, Frequency Band = Band 41 (BRS High), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



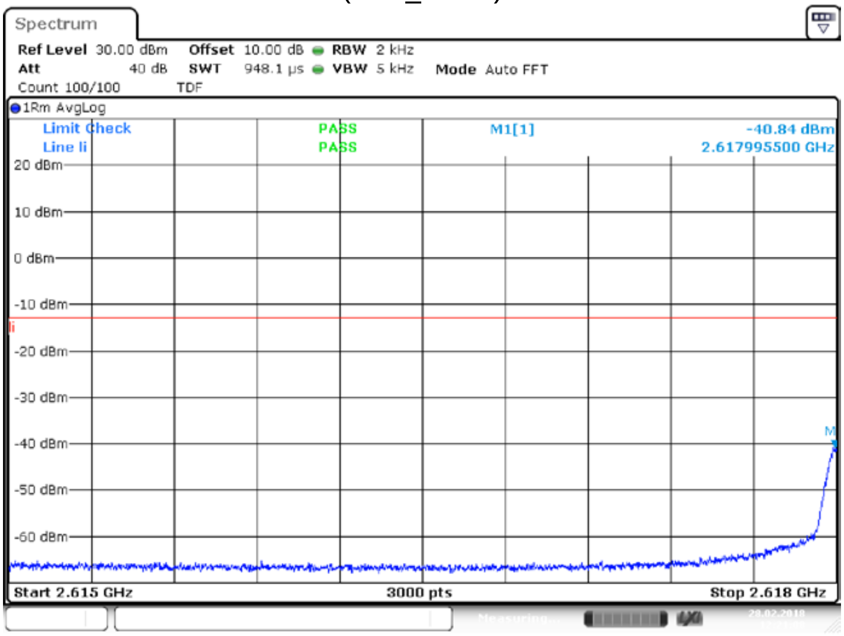
out of band emi;BRS High;AWGN;upper;2 carriers +3 dB;2.690G;
2.693G

Band Edge = Upper, Frequency Band = Band 41 (BRS High), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



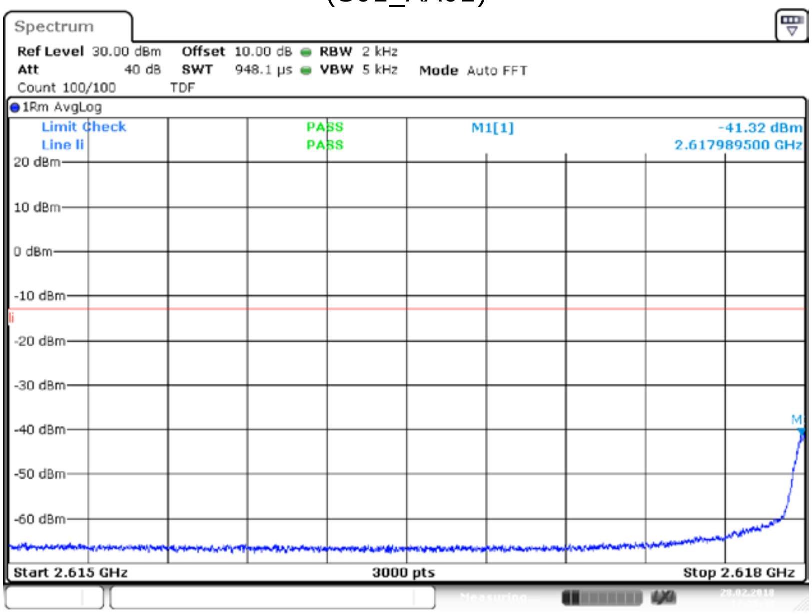
out of band emi;BRS High;AWGN;upper;2 carriers -0.3 dB;2.690
G;2.693G

Band Edge = Lower, Frequency Band = Band 41 (BRS High), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



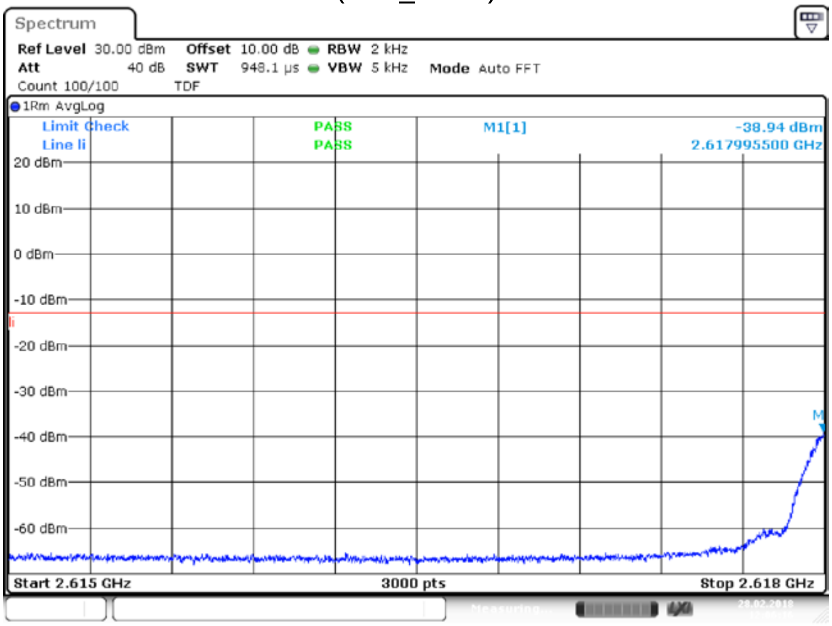
out of band emi;BRS High;GSM;lower;1 carrier +3 dB;2.615G;2.618G

Band Edge = Lower, Frequency Band = Band 41 (BRS High), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



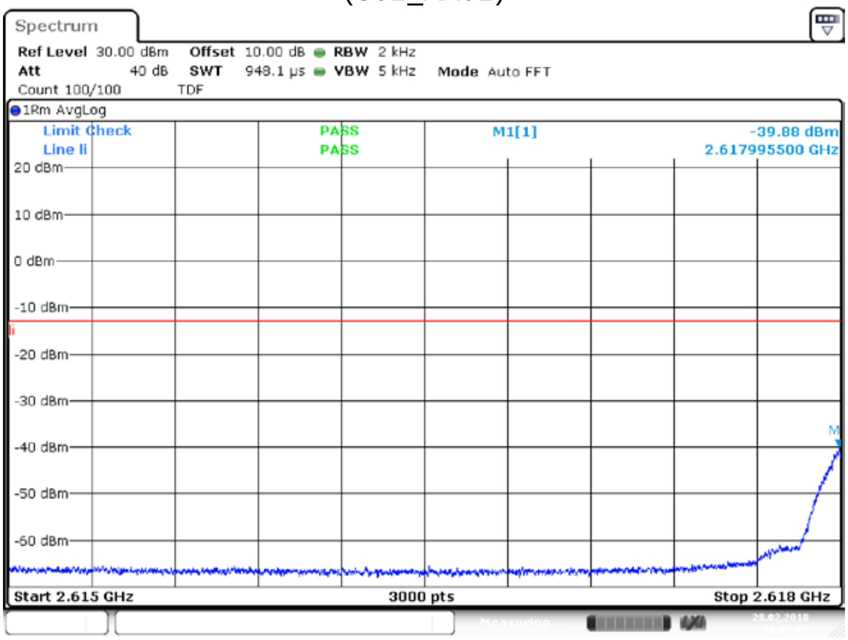
out of band emi;BRS High;GSM;lower;1 carrier -0.3 dB;2.615G;2.618G

Band Edge = Lower, Frequency Band = Band 41 (BRS High), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband
(S01_AA01)



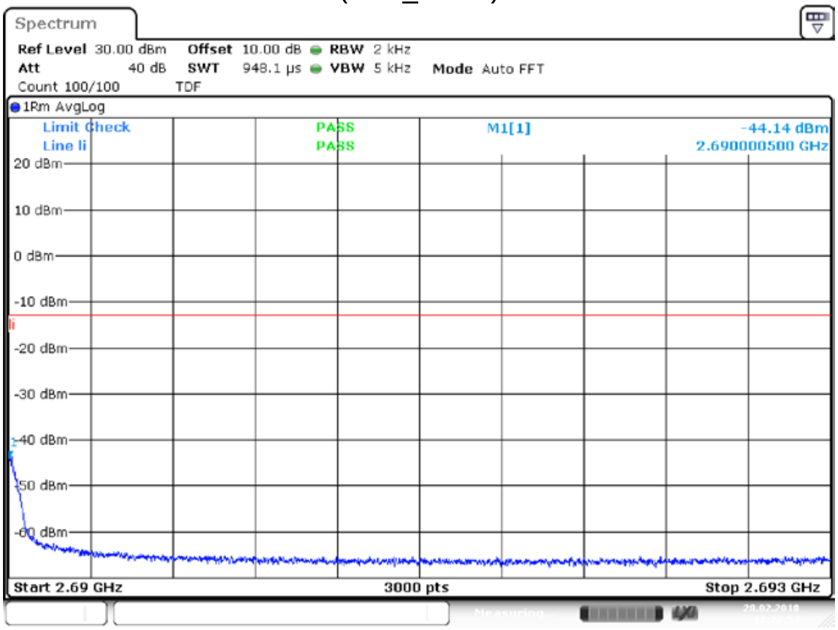
out of band emi;BRS High;GSM;lower;2 carriers +3 dB;2.615G;2
.618G

Band Edge = Lower, Frequency Band = Band 41 (BRS High), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband
(S01_AA01)



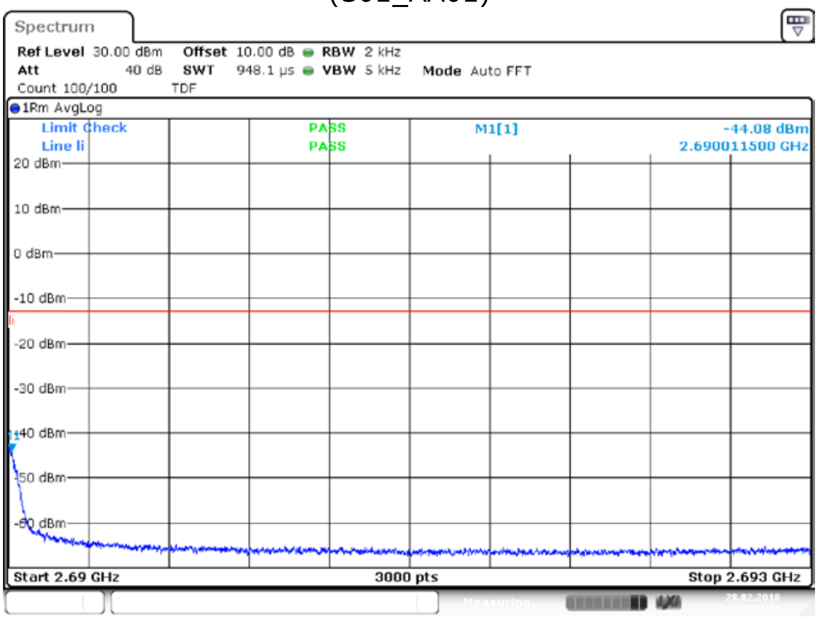
out of band emi;BRS High;GSM;lower;2 carriers -0.3 dB;2.615G
;2.618G

Band Edge = Upper, Frequency Band = Band 41 (BRS High), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



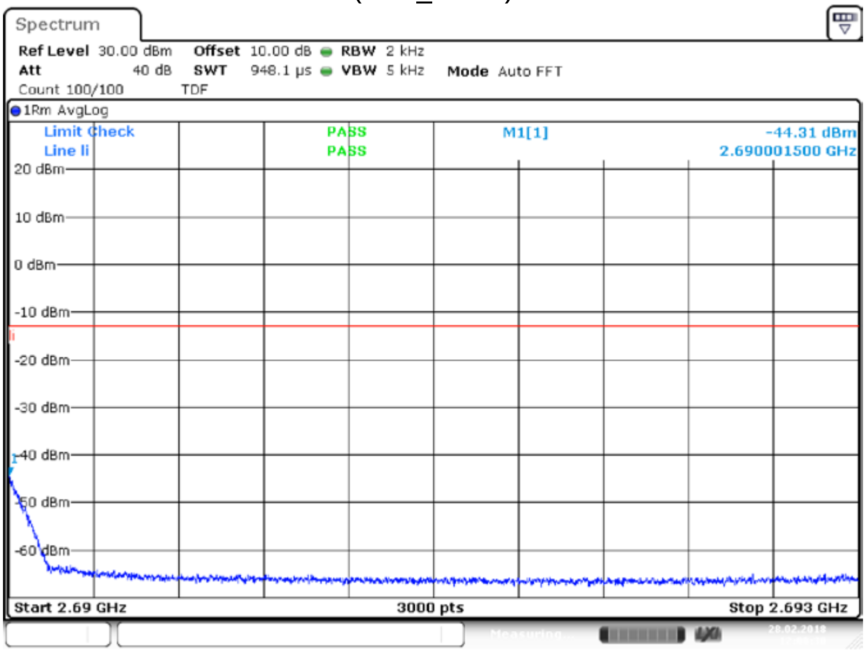
out of band emi;BRS High;GSM;upper;1 carrier +3 dB;2.690G;2.693G

Band Edge = Upper, Frequency Band = Band 41 (BRS High), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



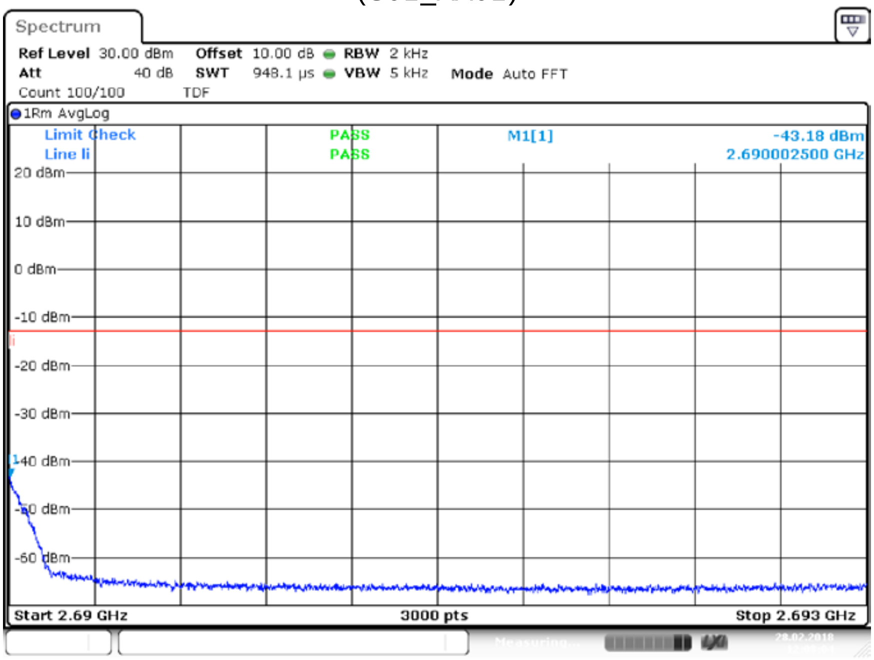
out of band emi;BRS High;GSM;upper;1 carrier -0.3 dB;2.690G;2.693G

Band Edge = Upper, Frequency Band = Band 41 (BRS High), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



out of band emi;BRS High;GSM;upper;2 carriers +3 dB;2.690G;2
.693G

Band Edge = Upper, Frequency Band = Band 41 (BRS High), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)

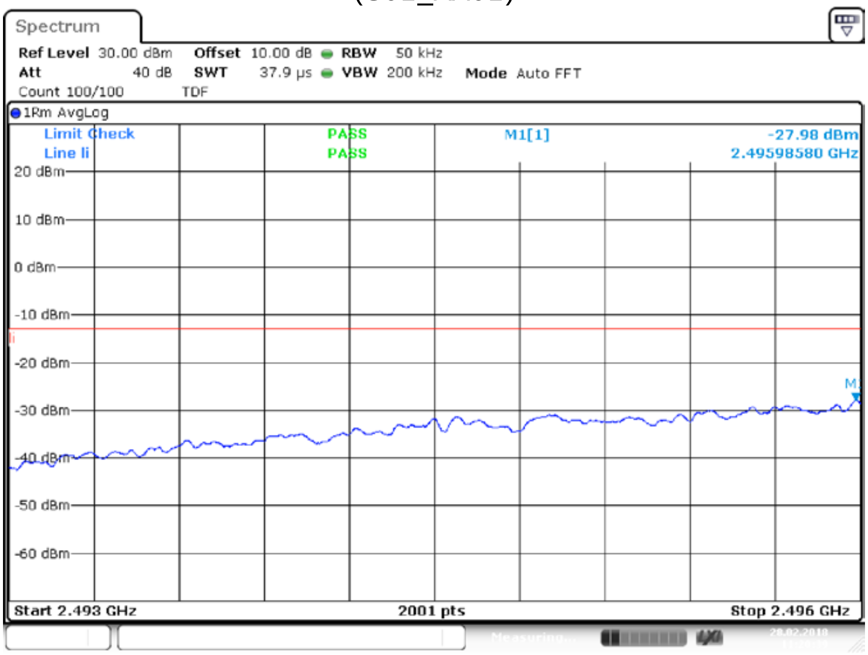


out of band emi;BRS High;GSM;upper;2 carriers -0.3 dB;2.690G
;2.693G

Band Edge = Lower, Frequency Band = Band 41 (BRS Low), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband
(S01_AA01)

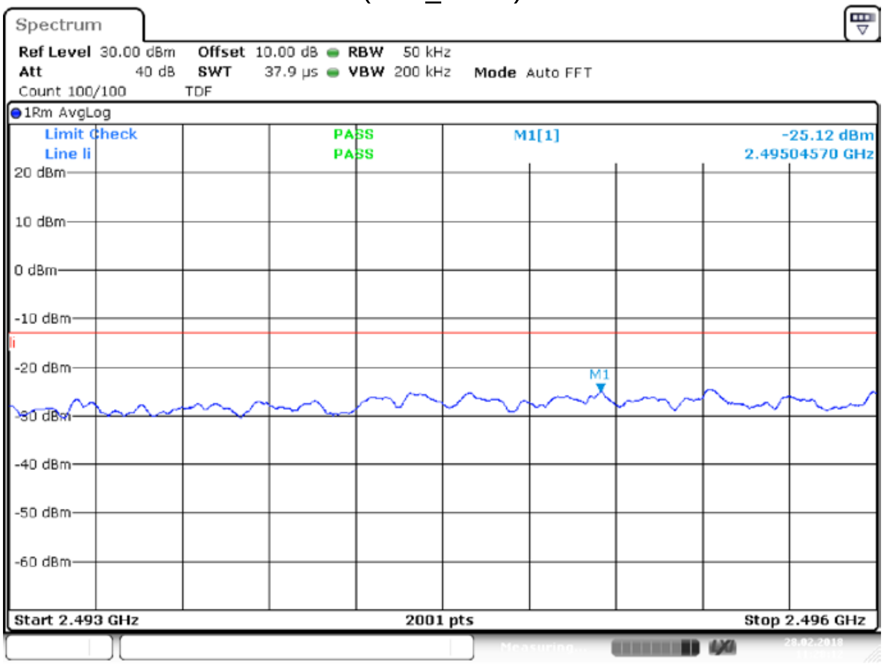
out of band emi;BRS Low;AWGN;lower;1 carrier +3 dB;2.493G;2.
496G

Band Edge = Lower, Frequency Band = Band 41 (BRS Low), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband
(S01_AA01)



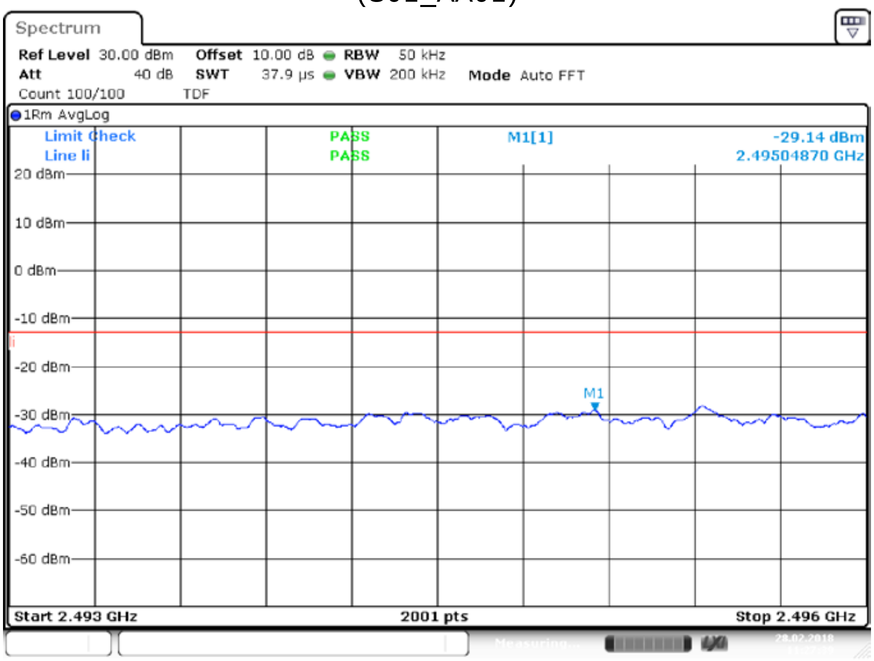
out of band emi;BRS Low;AWGN;lower;1 carrier -0.3 dB;2.493G;
2.496G

Band Edge = Lower, Frequency Band = Band 41 (BRS Low), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



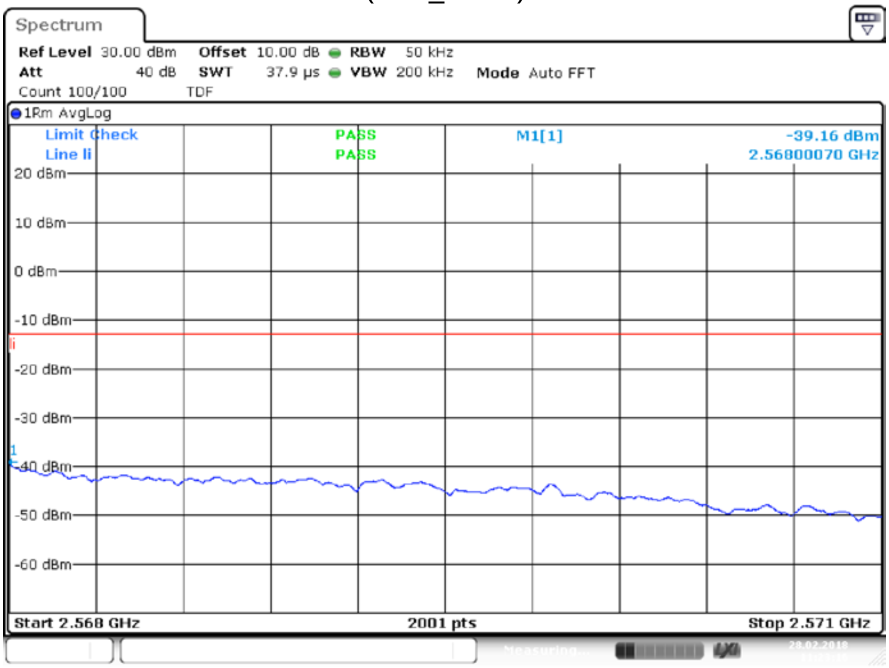
out of band emi;BRS Low;AWGN;lower;2 carriers +3 dB;2.493G;2
.496G

Band Edge = Lower, Frequency Band = Band 41 (BRS Low), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



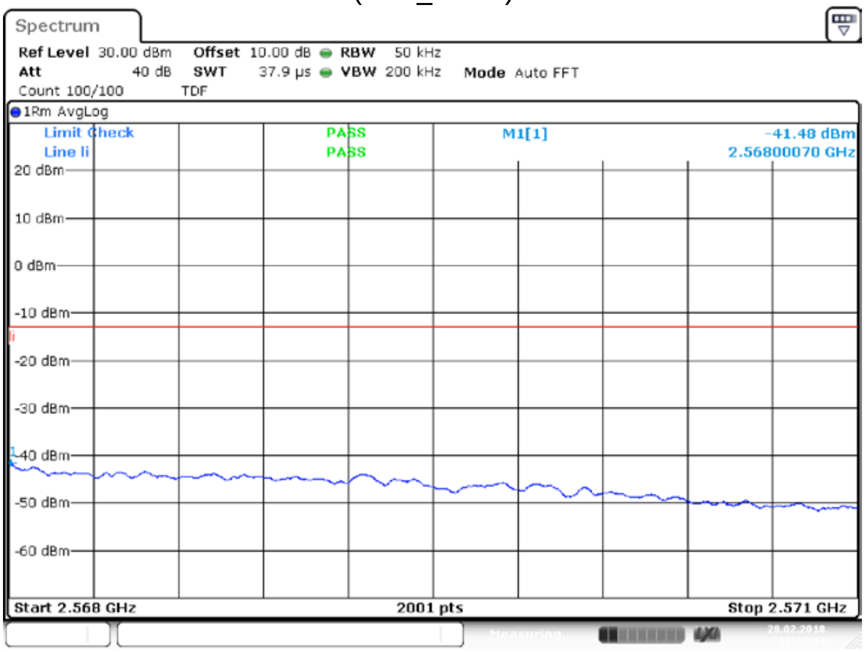
out of band emi;BRS Low;AWGN;lower;2 carriers -0.3 dB;2.493G
;2.496G

Band Edge = Upper, Frequency Band = Band 41 (BRS Low), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



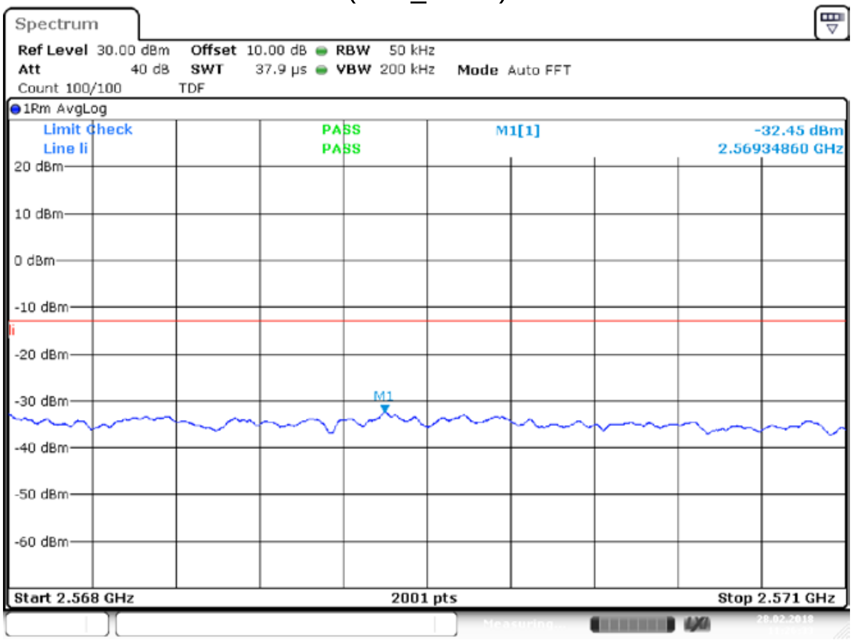
out of band emi;BRS Low;AWGN;upper;1 carrier +3 dB;2.568G;2.571G

Band Edge = Upper, Frequency Band = Band 41 (BRS Low), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



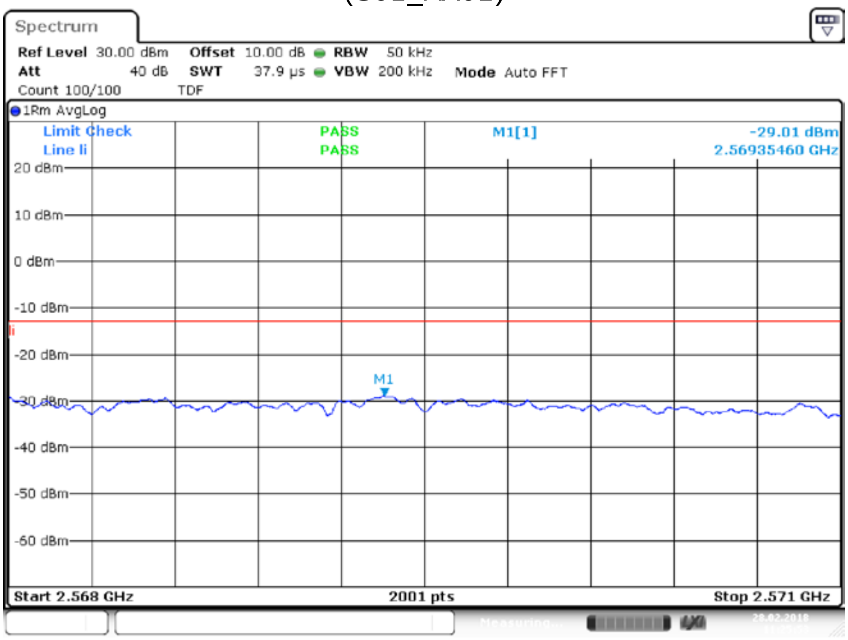
out of band emi;BRS Low;AWGN;upper;1 carrier -0.3 dB;2.568G;2.571G

Band Edge = Upper, Frequency Band = Band 41 (BRS Low), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



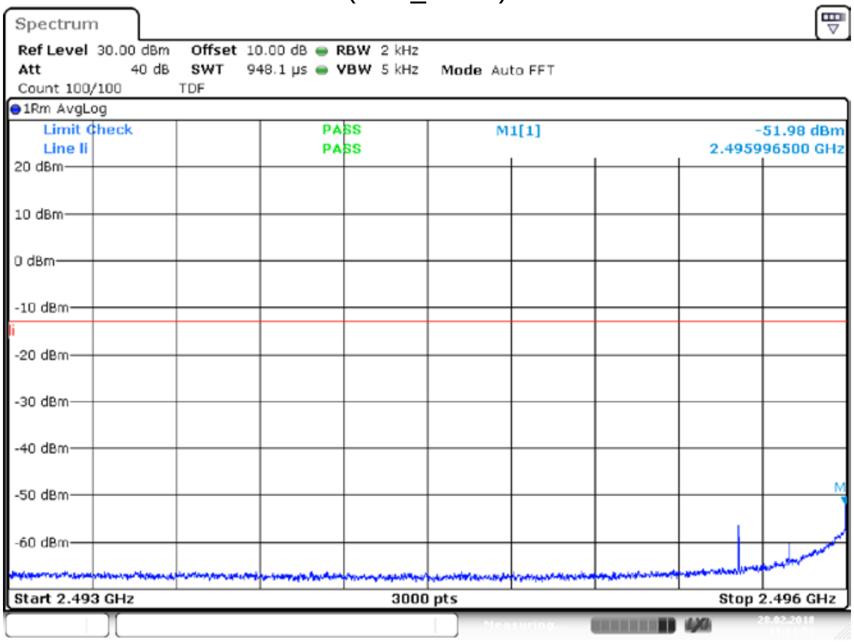
out of band emi;BRS Low;AWGN;upper;2 carriers +3 dB;2.568G;2.571G

Band Edge = Upper, Frequency Band = Band 41 (BRS Low), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



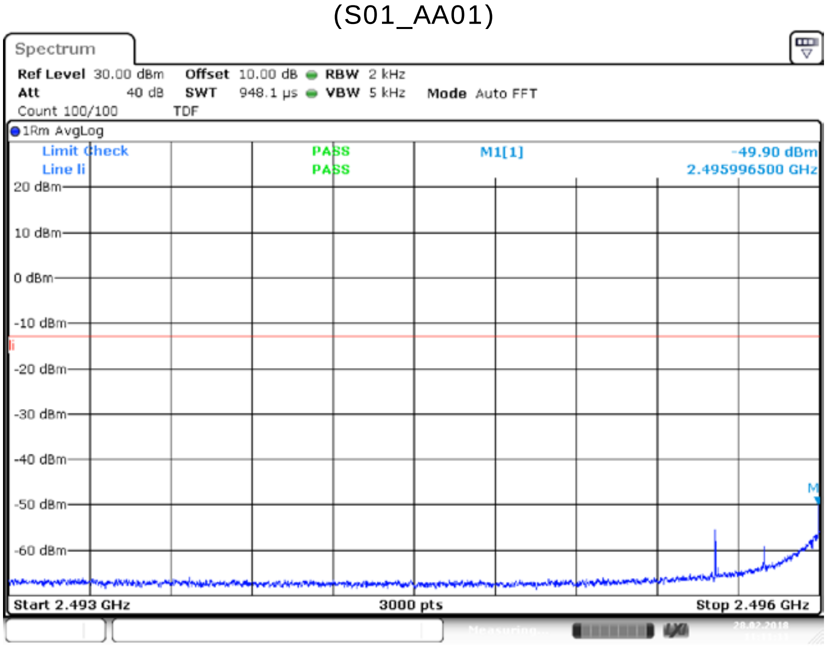
out of band emi;BRS Low;AWGN;upper;2 carriers -0.3 dB;2.568G;2.571G

Band Edge = Lower, Frequency Band = Band 41 (BRS Low), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



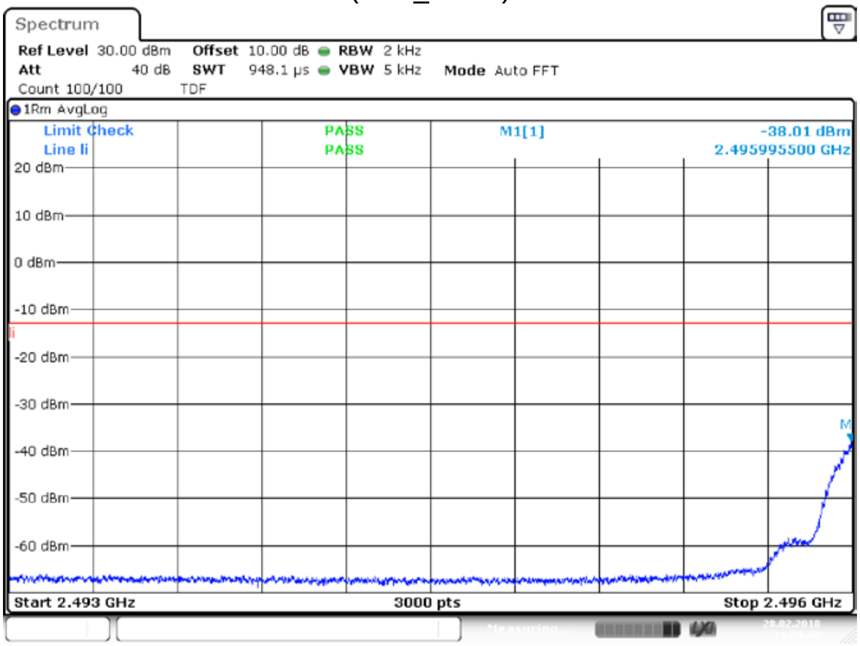
out of band emi;BRS Low;GSM;lower;1 carrier +3 dB;2.493G;2.4
96G

Band Edge = Lower, Frequency Band = Band 41 (BRS Low), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



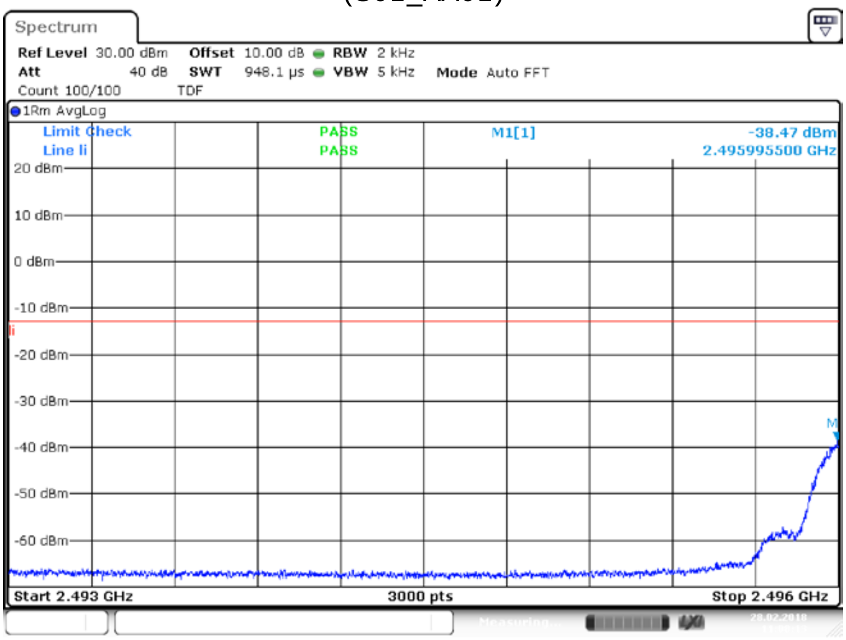
out of band emi;BRS Low;GSM;lower;1 carrier -0.3 dB;2.493G;2
.496G

Band Edge = Lower, Frequency Band = Band 41 (BRS Low), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



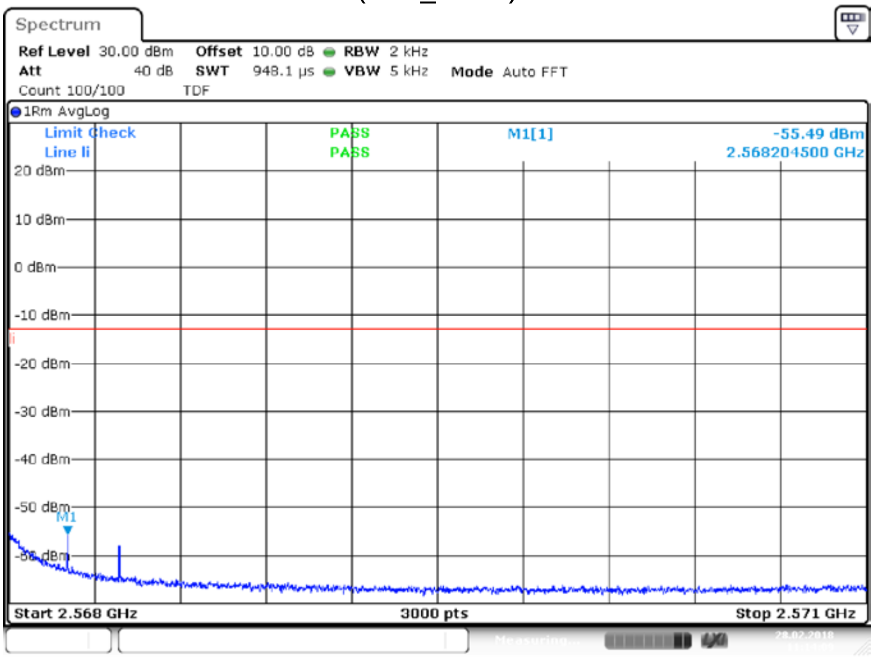
out of band emi;BRS Low;GSM;lower;2 carriers +3 dB;2.493G;2.496G

Band Edge = Lower, Frequency Band = Band 41 (BRS Low), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



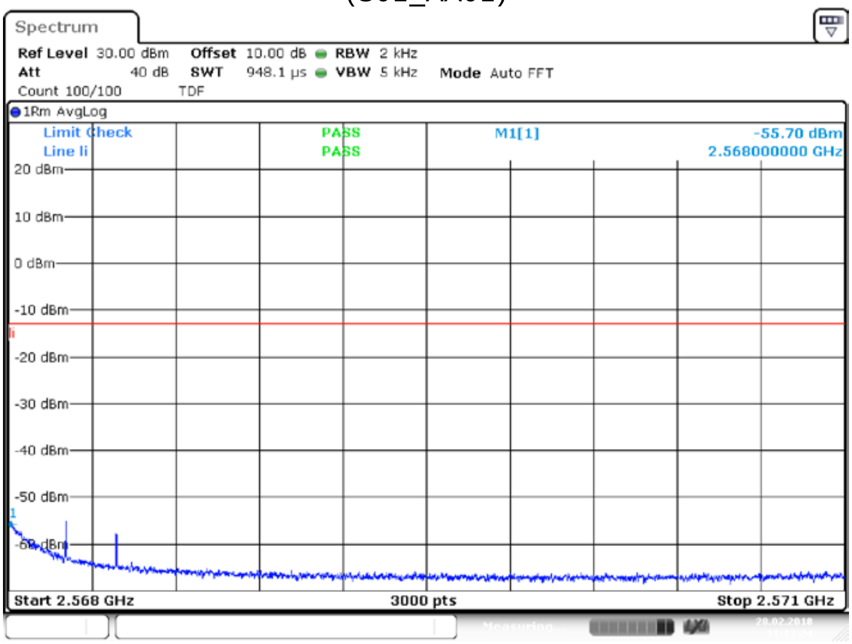
out of band emi;BRS Low;GSM;lower;2 carriers -0.3 dB;2.493G;2.496G

Band Edge = Upper, Frequency Band = Band 41 (BRS Low), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



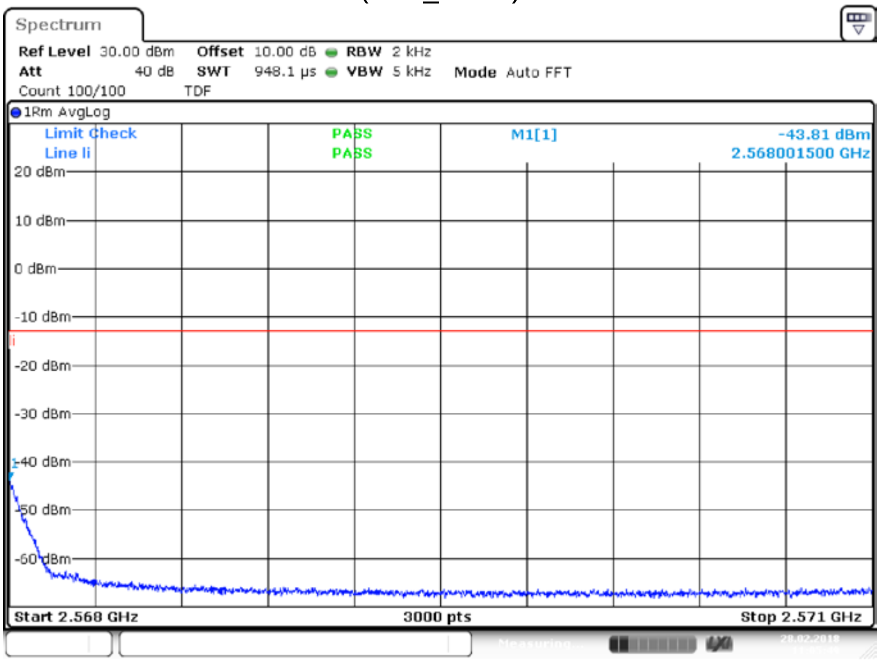
out of band emi;BRS Low;GSM;upper;1 carrier +3 dB;2.568G;2.5
71G

Band Edge = Upper, Frequency Band = Band 41 (BRS Low), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



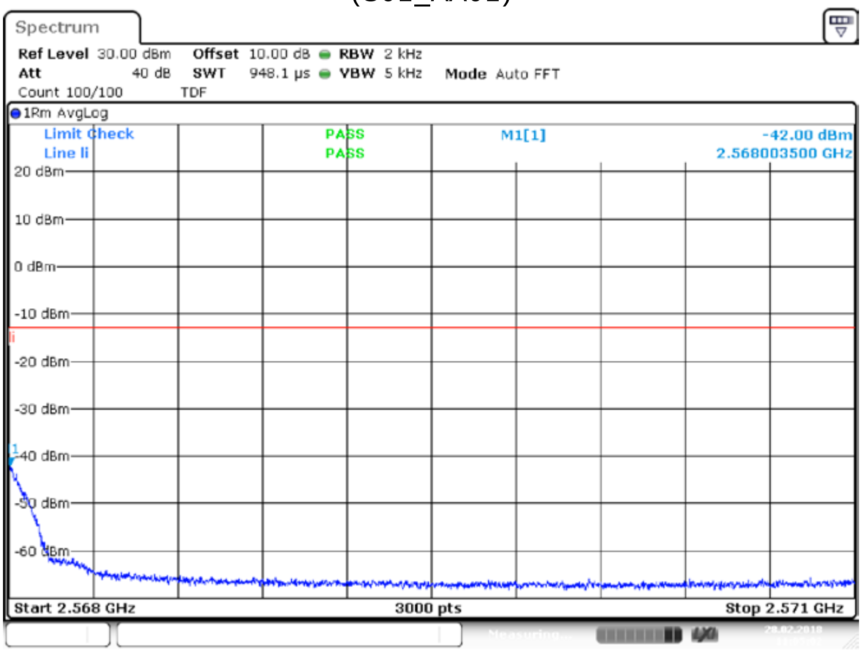
out of band emi;BRS Low;GSM;upper;1 carrier -0.3 dB;2.568G;2
.571G

Band Edge = Upper, Frequency Band = Band 41 (BRS Low), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



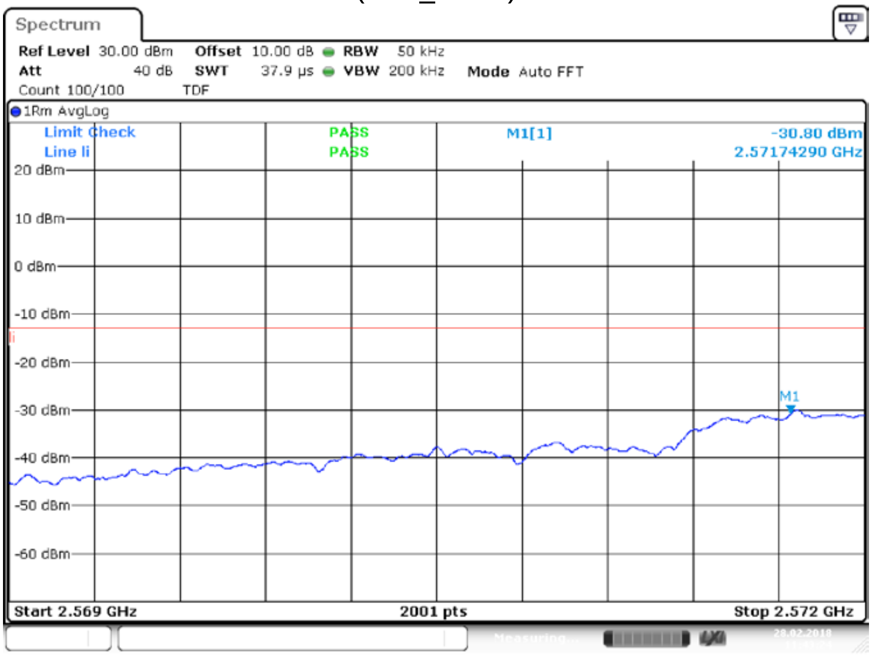
out of band emi;BRS Low;GSM;upper;2 carriers +3 dB;2.568G;2.571G

Band Edge = Upper, Frequency Band = Band 41 (BRS Low), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



out of band emi;BRS Low;GSM;upper;2 carriers -0.3 dB;2.568G;2.571G

Band Edge = Lower, Frequency Band = Band 41 (BRS Mid), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)

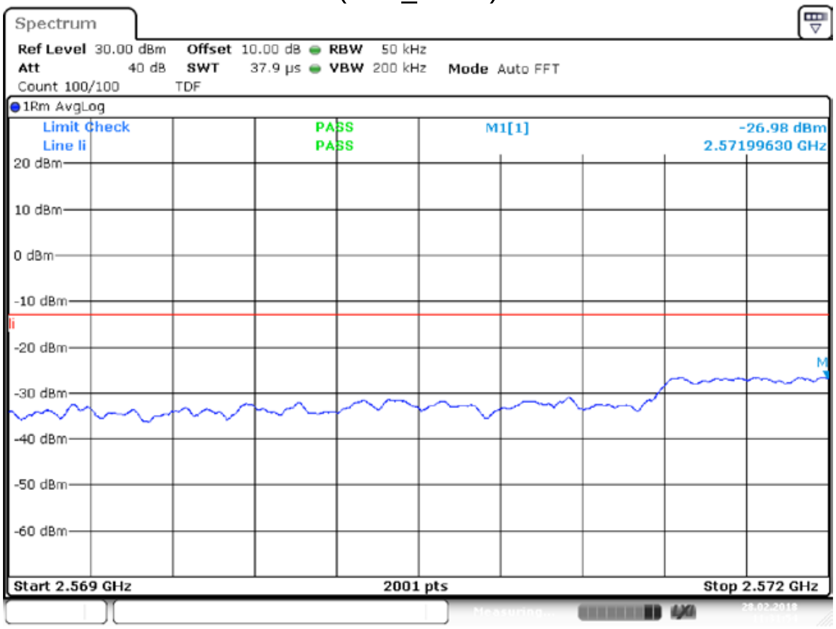


out of band emi;BRS Mid;AWGN;lower;1 carrier +3 dB;2.569G;2.572G

Band Edge = Lower, Frequency Band = Band 41 (BRS Mid), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)

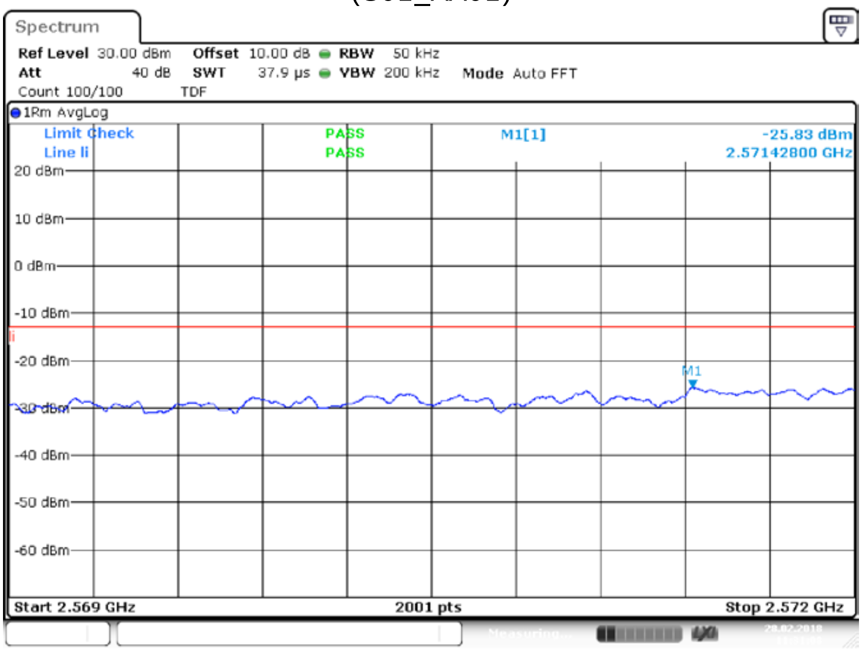
out of band emi;BRS Mid;AWGN;lower;1 carrier -0.3 dB;2.569G;2.572G

Band Edge = Lower, Frequency Band = Band 41 (BRS Mid), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



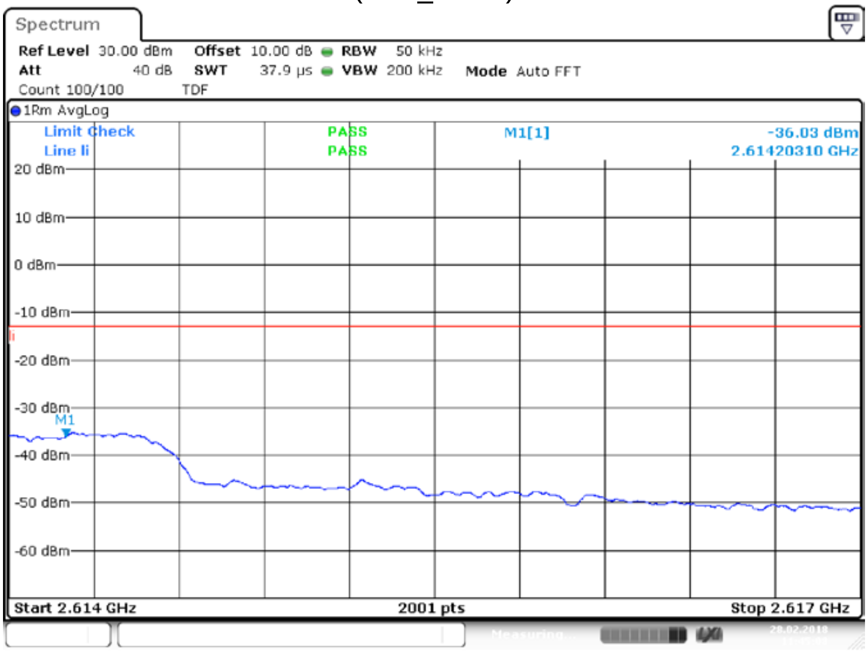
out of band emi;BRS Mid;AWGN;lower;2 carriers +3 dB;2.569G;2.572G

Band Edge = Lower, Frequency Band = Band 41 (BRS Mid), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



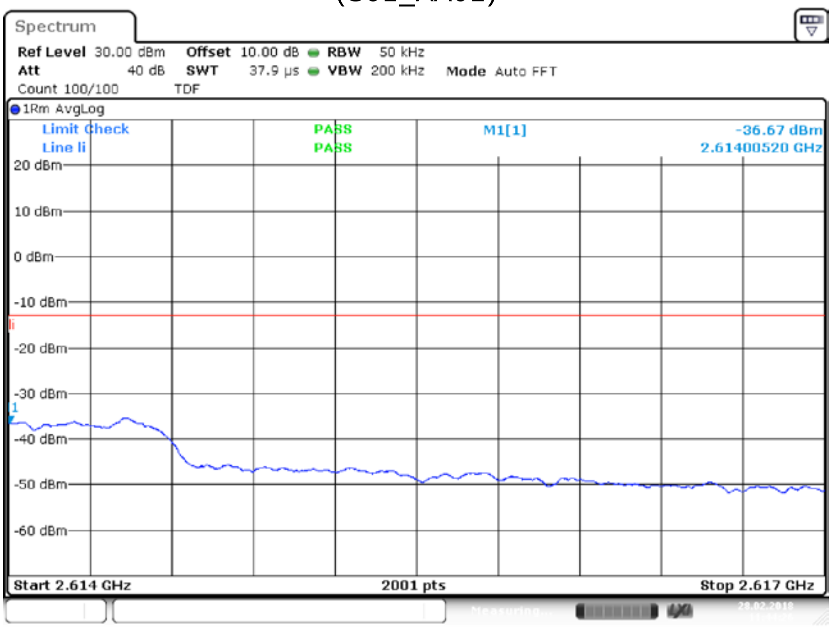
out of band emi;BRS Mid;AWGN;lower;2 carriers -0.3 dB;2.569G;2.572G

Band Edge = Upper, Frequency Band = Band 41 (BRS Mid), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



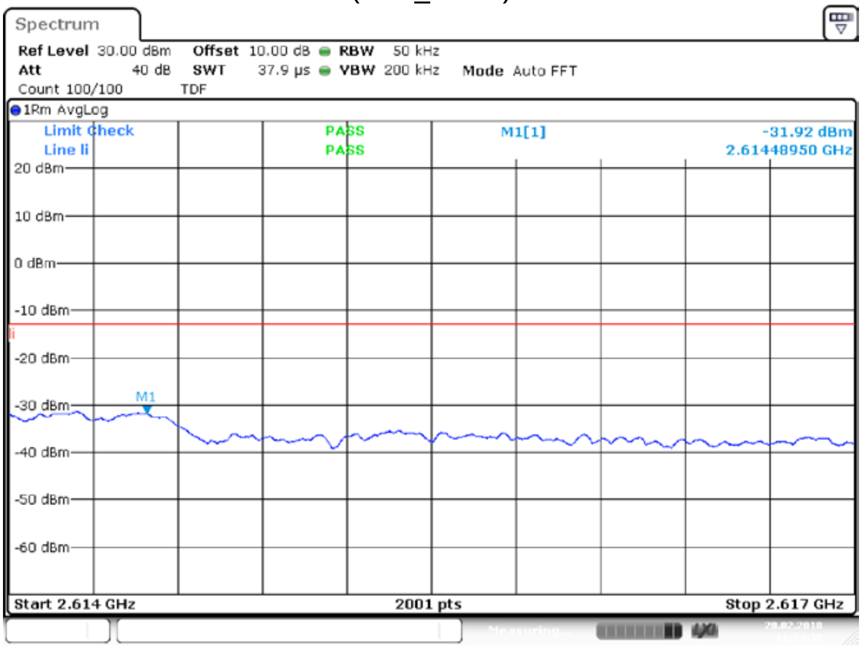
out of band emi;BRS Mid;AWGN;upper;1 carrier +3 dB;2.614G;2.617G

Band Edge = Upper, Frequency Band = Band 41 (BRS Mid), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



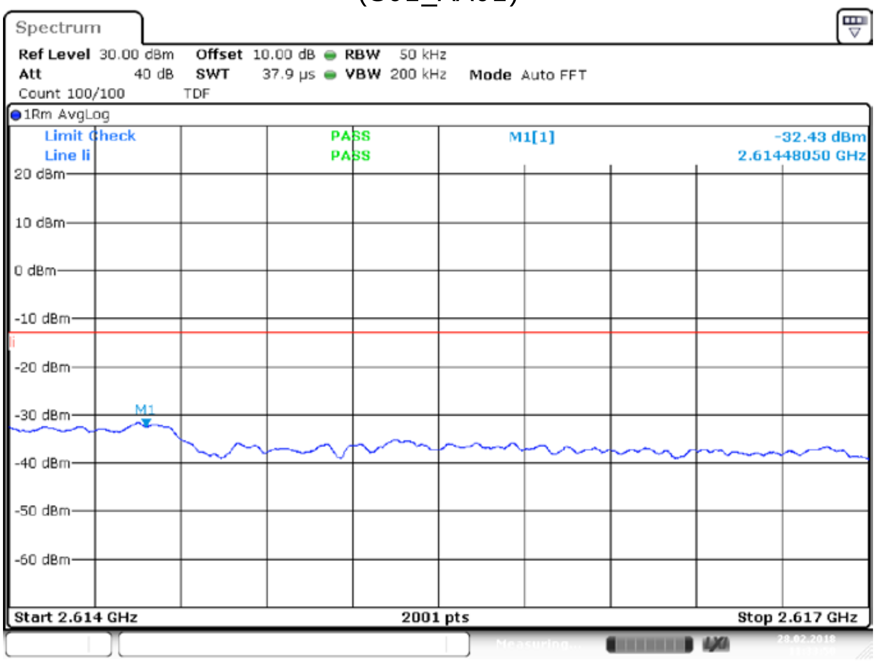
out of band emi;BRS Mid;AWGN;upper;1 carrier -0.3 dB;2.614G;2.617G

Band Edge = Upper, Frequency Band = Band 41 (BRS Mid), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Wideband (S01_AA01)



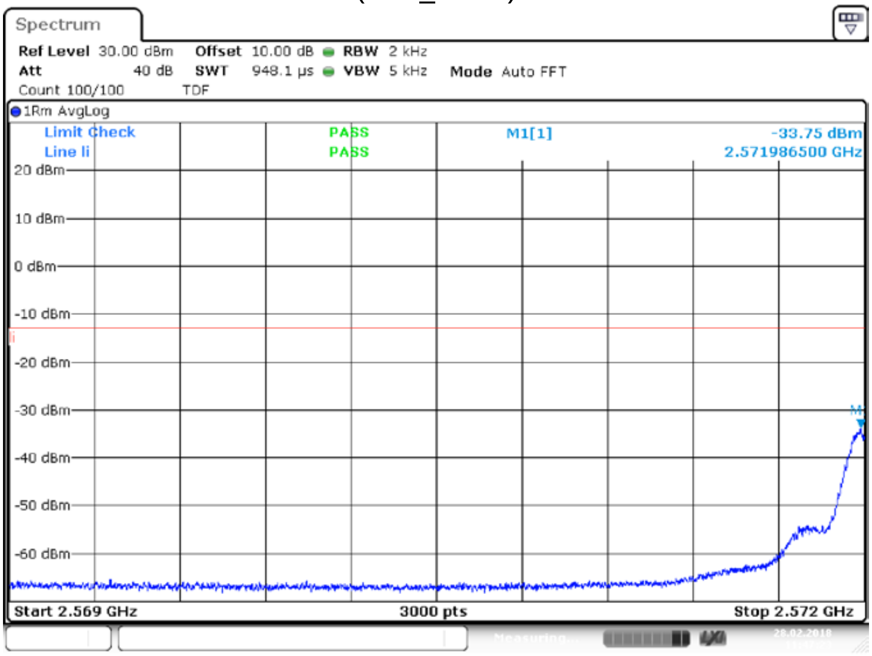
out of band emi;BRS Mid;AWGN;upper;2 carriers +3 dB;2.614G;2
.617G

Band Edge = Upper, Frequency Band = Band 41 (BRS Mid), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Wideband (S01_AA01)



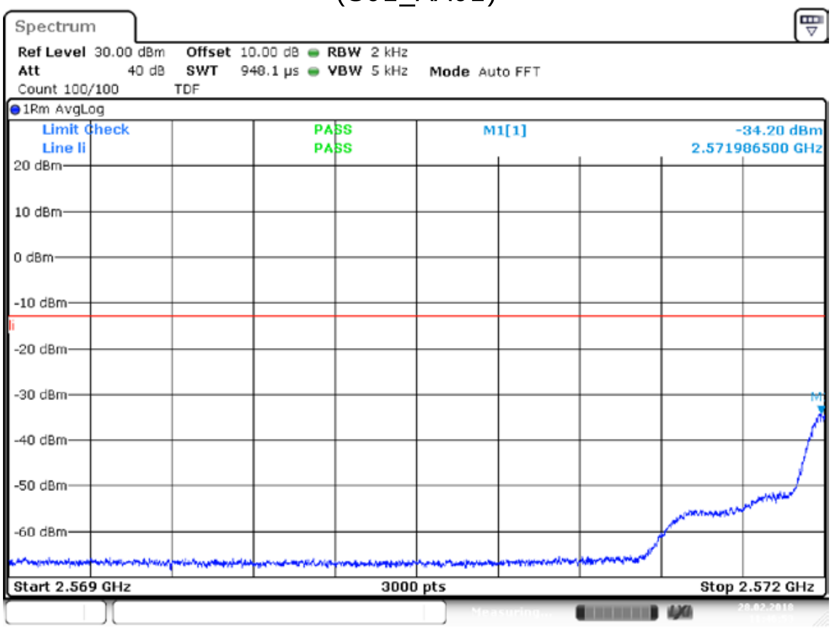
out of band emi;BRS Mid;AWGN;upper;2 carriers -0.3 dB;2.614G
;2.617G

Band Edge = Lower, Frequency Band = Band 41 (BRS Mid), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



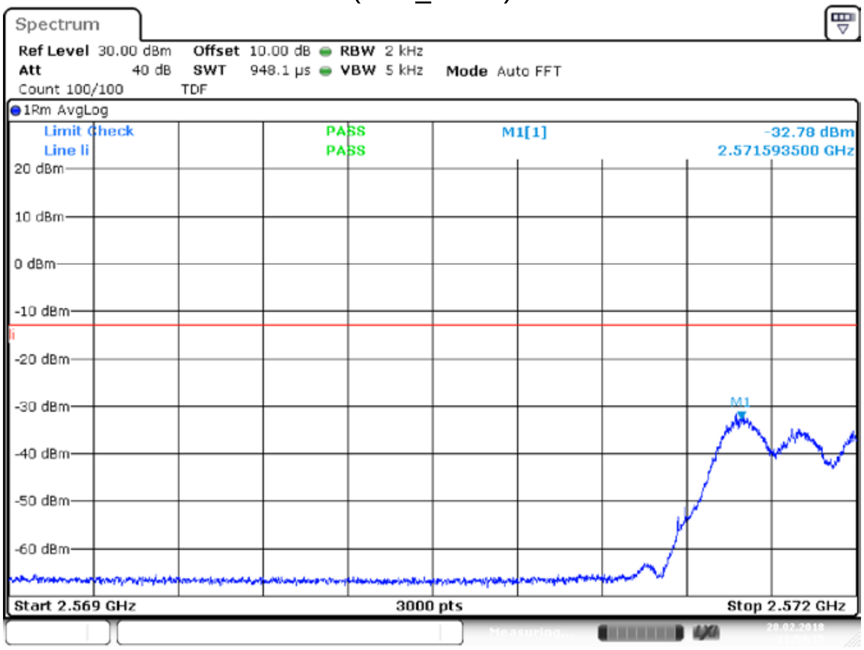
out of band emi;BRS Mid;GSM;lower;1 carrier +3 dB;2.569G;2.572G

Band Edge = Lower, Frequency Band = Band 41 (BRS Mid), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



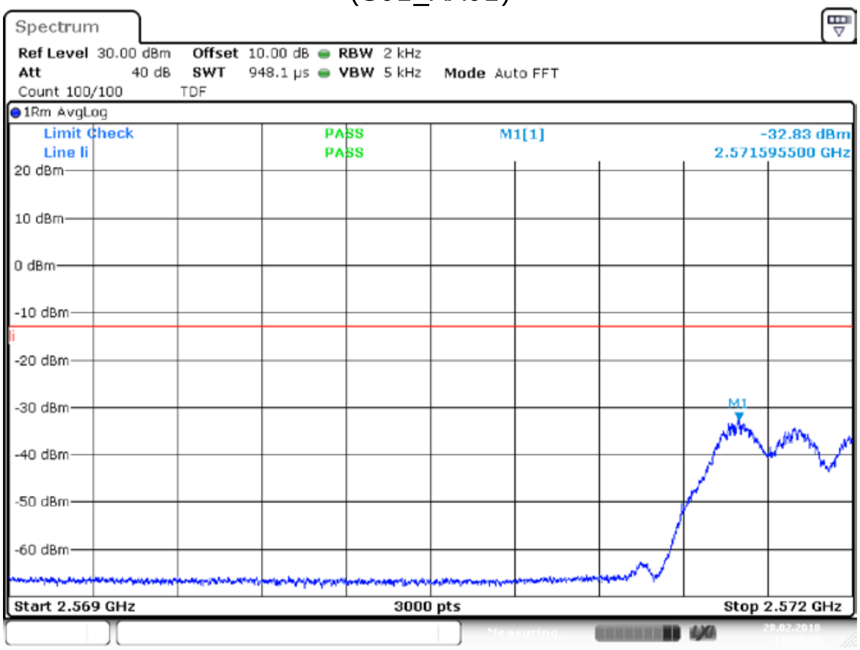
out of band emi;BRS Mid;GSM;lower;1 carrier -0.3 dB;2.569G;2.572G

Band Edge = Lower, Frequency Band = Band 41 (BRS Mid), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



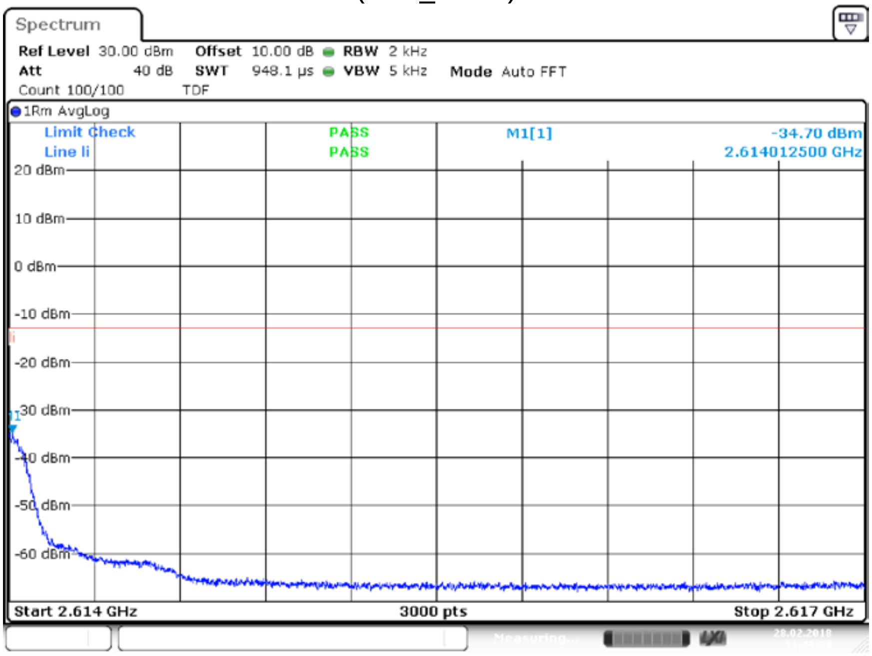
out of band emi;BRS Mid;GSM;lower;2 carriers +3 dB;2.569G;2.572G

Band Edge = Lower, Frequency Band = Band 41 (BRS Mid), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



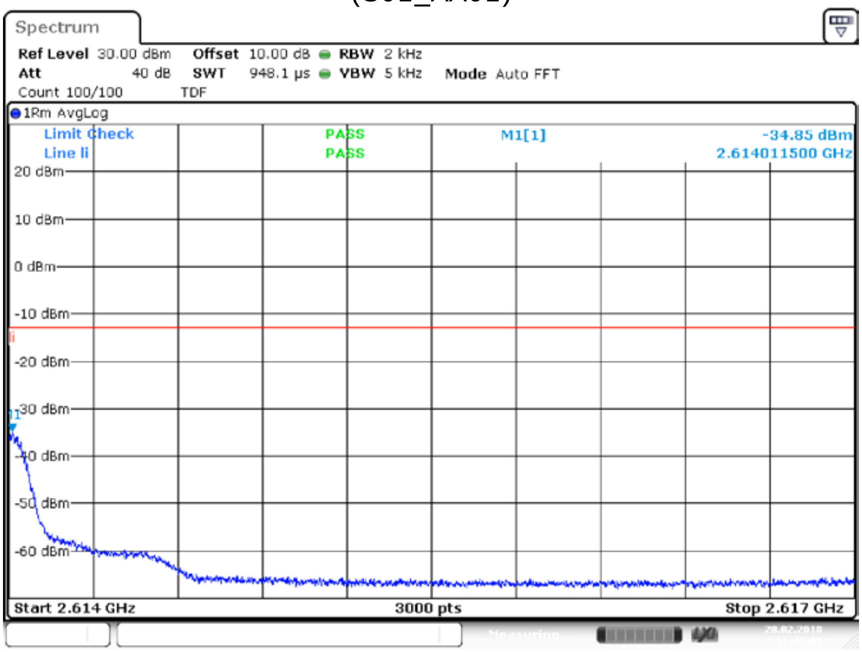
out of band emi;BRS Mid;GSM;lower;2 carriers -0.3 dB;2.569G;2.572G

Band Edge = Upper, Frequency Band = Band 41 (BRS Mid), Number of signals = 1, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



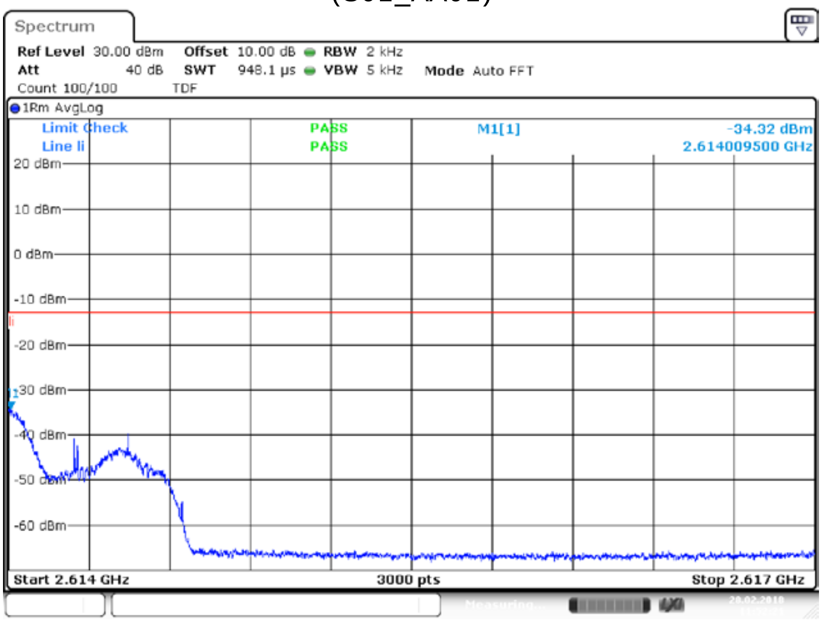
out of band emi;BRS Mid;GSM;upper;1 carrier +3 dB;2.614G;2.617G

Band Edge = Upper, Frequency Band = Band 41 (BRS Mid), Number of signals = 1, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



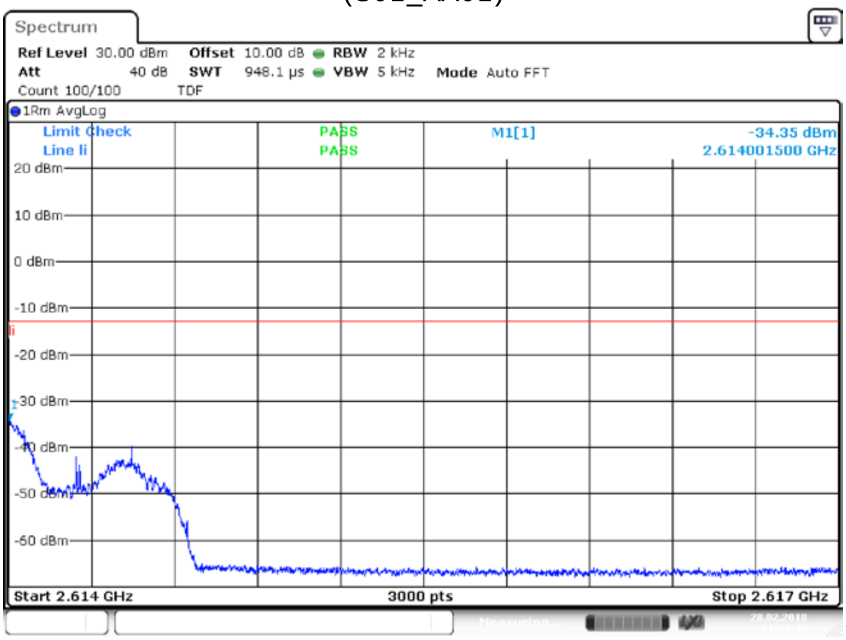
out of band emi;BRS Mid;GSM;upper;1 carrier -0.3 dB;2.614G;2.617G

Band Edge = Upper, Frequency Band = Band 41 (BRS Mid), Number of signals = 2, Direction = RF downlink, Input Power = 3 dB > AGC, Signal Type = Narrowband (S01_AA01)



out of band emi;BRS Mid;GSM;upper;2 carriers +3 dB;2.614G;2.617G

Band Edge = Upper, Frequency Band = Band 41 (BRS Mid), Number of signals = 2, Direction = RF downlink, Input Power = 0.3 dB < AGC, Signal Type = Narrowband (S01_AA01)



out of band emi;BRS Mid;GSM;upper;2 carriers -0.3 dB;2.614G;2.617G

4.5.5 TEST EQUIPMENT USED

- FCC Conducted Base Station / Repeater

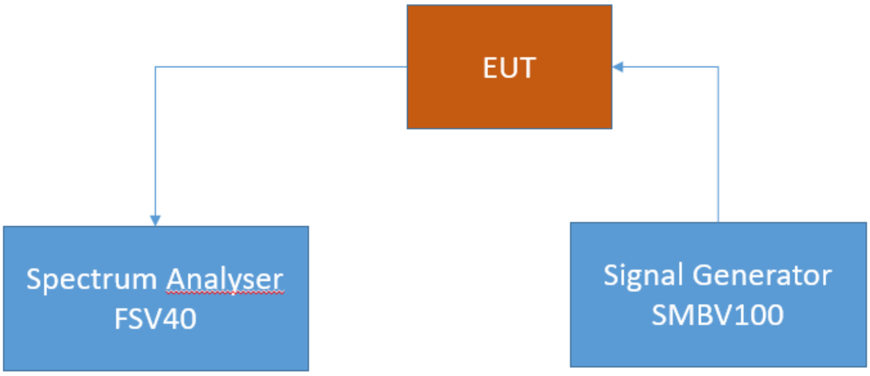
4.6 OUT-OF-BAND REJECTION

Standard FCC Part 27

The test was performed according to:
ANSI C63.26

4.6.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the out-of-band rejection test case for industrial signal boosters.
The EUT was connected to the test setup according to the following diagram:



FCC Part 22/24/27/90 Industrial signal booster – Test Setup; Out-of-band rejection

The attenuation of the measuring and stimulus path are known for each measured frequency and are considered.

The Spectrum Analyzer settings can be directly found in the measurement diagrams.

4.6.2 TEST REQUIREMENTS / LIMITS

For this test case exists no applicable limit

4.6.3 TEST PROTOCOL

Band 41 BRS Low, downlink				
Highest Power Frequency [MHz]	Output Power [dBm]	Lower Highest Power -20 dB Frequency [MHz]	Upper Highest Power -20 dB Frequency [MHz]	20 dB Bandwidth [kHz]
2518.800	12.320	2493.889	2570.181	76292.0

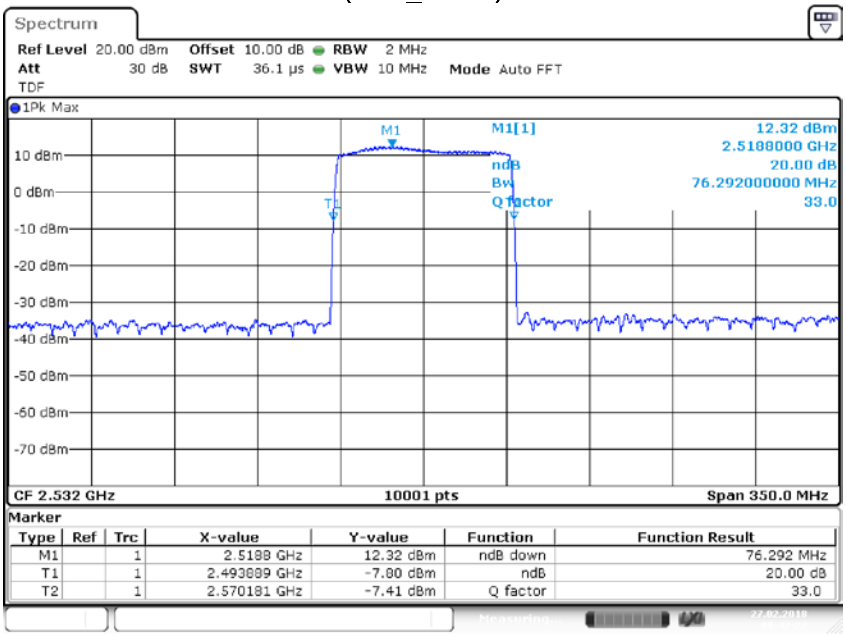
Band 41 BRS Mid, downlink				
Highest Power Frequency [MHz]	Output Power [dBm]	Lower Highest Power -20 dB Frequency [MHz]	Upper Highest Power -20 dB Frequency [MHz]	20 dB Bandwidth [kHz]
2578.400	11.600	2570.322	2615.657	45334.0

Band 41 BRS High, downlink				
Highest Power Frequency [MHz]	Output Power [dBm]	Lower Highest Power -20 dB Frequency [MHz]	Upper Highest Power -20 dB Frequency [MHz]	20 dB Bandwidth [kHz]
2643.000	11.370	2615.749	2692.146	76397.0

Remark: Please see next sub-clause for the measurement plot.

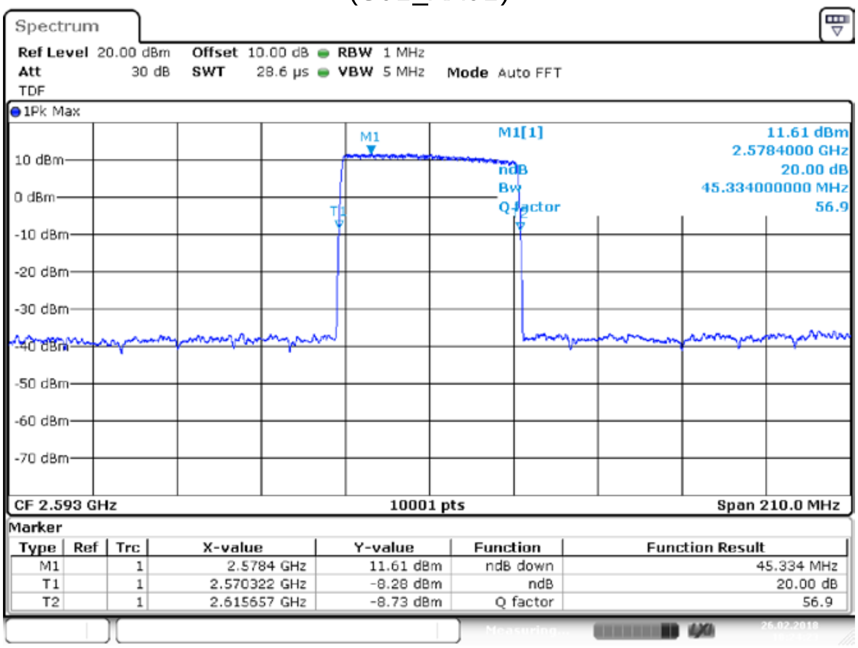
4.6.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, “WORST CASE”)

Frequency Band = Band 41 (BRS Low), Direction = RF downlink
(S01_AA01)



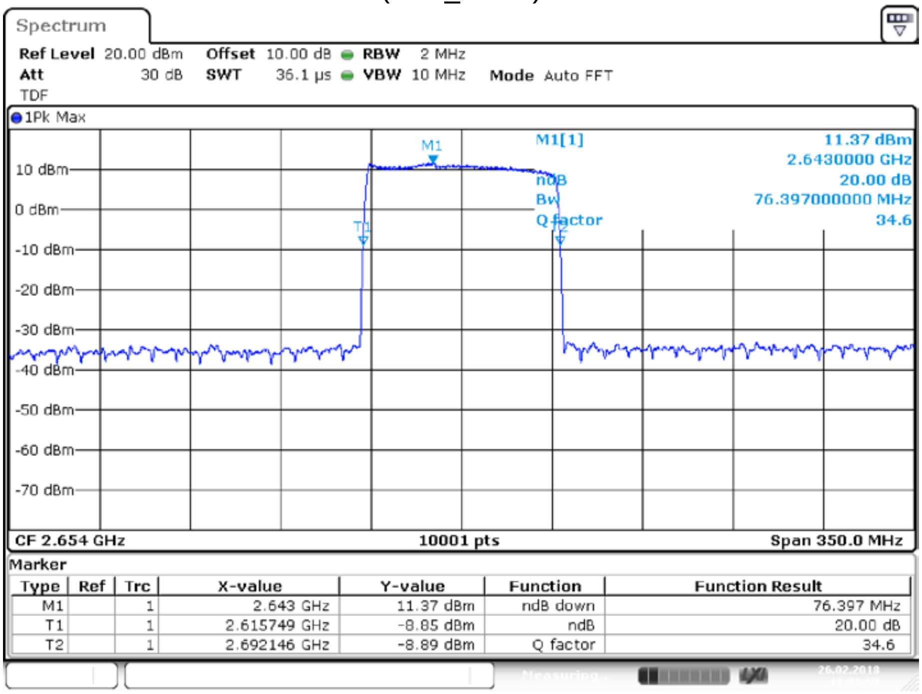
Out of band rejection 2.53200G
_20dB

Frequency Band = Band 41 (BRS Mid), Direction = RF downlink
(S01_AA01)



Out of band rejection BRS Mid2.59300G
_20dB

Frequency Band = Band 41 (BRS High), Direction = RF downlink
(S01_AA01)



Out of band rejection 2.65400G
_20dB

4.6.5 TEST EQUIPMENT USED

- FCC Conducted Base Station / Repeater

4.7 FIELD STRENGTH OF SPURIOUS RADIATION

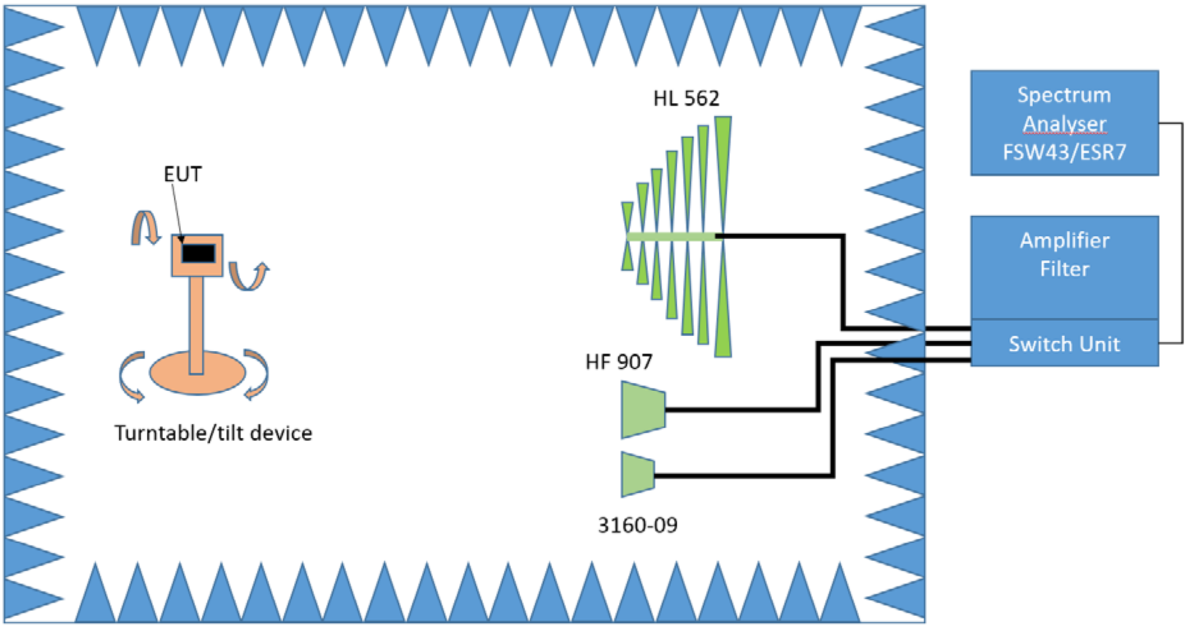
Standard FCC Part 27, §24.53

The test was performed according to:
ANSI C63.26

4.7.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable radiated spurious emission measurements per § 2.1053

The EUT was connected to the test setup according to the following diagram:



FCC Part 22/24/27/90; Industrial Signal Booster – Test Setup; Field Strength of Spurious Radiation

The test set-up was made in accordance to the general provisions of ANSI C63.4 in a typical installation configuration. The Equipment Under Test (EUT) was set up on a non-conductive table 1.0 x 2.0 m² in the semi-anechoic chamber. The influence of the EUT support table that is used between 30–1000 MHz was evaluated.
The measurement procedure is implemented into the EMI test software EMC32 from R&S.
Exploratory tests are performed at 3 orthogonal axes to determine the worst-case orientation of a body-worn or handheld EUT. The final test on all kind of EUTs is also performed at 3 axes.
A pre-check is performed while the EUT is powered from a DC power source.

1. Measurement above 30 MHz and up to 1 GHz

Step 1: Preliminary scan
This is a preliminary test to identify the highest amplitudes relative to the limit.
Settings for step 1:
- Antenna distance: 3 m
- Detector: Peak-Maxhold / Quasipeak (FFT-based)
- Frequency range: 30 – 1000 MHz

- Frequency steps: 30 kHz
- IF–Bandwidth: 120 kHz
- Measuring time / Frequency step: 100 ms
- Turntable angle range: –180° to 90°
- Turntable step size: 90°
- Height variation range: 1 – 3 m
- Height variation step size: 2 m
- Polarisation: Horizontal + Vertical

Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: Adjustment measurement
In this step the accuracy of the turntable azimuth and antenna height will be improved. This is necessary to find out the maximum value of every frequency.
For each frequency, which was determined the turntable azimuth and antenna height will be adjusted. The turntable azimuth will slowly vary by ± 45° around this value. During this action, the value of emission is continuously measured. The turntable azimuth at the highest emission will be recorded and adjusted. In this position, the antenna height will also slowly vary by ± 100 cm around the antenna height determined. During this action, the value of emission is also continuously measured. The antenna height of the highest emission will also be recorded and adjusted.
- Detector: Peak – Maxhold
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 100 ms
- Turntable angle range: ± 45 ° around the determined value
- Height variation range: ± 100 cm around the determined value
- Antenna Polarisation: max. value determined in step 1

Step 3: Final measurement with QP detector
With the settings determined in step 3, the final measurement will be performed:
EMI receiver settings for step 4:
- Detector: Quasi-Peak (< 1 GHz)
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 1 s

After the measurement a plot will be generated which contains a diagram with the results of the preliminary scan and a chart with the frequencies and values of the results of the final measurement.

3. Measurement above 1 GHz
The following modifications apply to the measurement procedure for the frequency range above 1 GHz:
Step 1:
The Equipment Under Test (EUT) was set up on a non-conductive support (tilt device) at 1.5 m height in the fully-anechoic chamber.
All steps were performed with one height (1.5 m) of the receiving antenna only.
The EUT is turned during the preliminary measurement across the elevation axis, with a step size of 90 °.
The turn table step size (azimuth angle) for the preliminary measurement is 45 °.
Step 2:
Due to the fact, that in this frequency range the test is performed in a fully anechoic room, the height scan of the receiving antenna instep 2 is omitted. Instead of this, a maximum search with a step size ± 45° for the elevation axis is performed.

The turn table azimuth will slowly vary by ± 22.5°.
The elevation angle will slowly vary by ± 45°
EMI receiver settings (for all steps):
- Detector: Peak, Average
- IF Bandwidth = 1 MHz

Step 3:

Spectrum analyser settings for step 3:
- Detector: Peak / Average
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 1 MHz
- Measuring time: 1 s

4.7.2 TEST REQUIREMENTS / LIMITS

FCC Part 2.1053; Measurement required: Field strength of spurious radiation:

Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of §2.1049, as appropriate.

Part 27; Miscellaneous Wireless Communication Services

Subpart C – Technical standards

§27.53 – Emission limits

Band 13

(c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

Band 12:

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Band 4:

(h) *AWS emission limits*—(1) *General protection levels.* Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 $\log_{10}$ (P) dB.

Band 41 BRS (LBS/MBS/UBS):

(m) For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts in accordance with the standards below. If a licensee has multiple contiguous channels, out-of-band emissions shall be measured from the upper and lower edges of the contiguous channels.

(1) Prior to the transition, and thereafter, solely within the MBS, for analog operations with an EIRP in excess of −9 dBW, the signal shall be attenuated at the channel edges by at least 38 dB relative to the peak visual carrier, then linearly sloping from that level to at least 60 dB of attenuation at 1 MHz below the lower band edge and 0.5 MHz above the upper band edge, and attenuated at least 60 dB at all other frequencies.

(2) For digital base stations, the attenuation shall be not less than 43 + 10 log (P) dB, unless a documented interference complaint is received from an adjacent channel licensee with an overlapping Geographic Service Area. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS No. 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

RSS-130; 4.6 Transmitter Unwanted Emissions

4.6.1 The power of any unwanted emissions in any 100 kHz bandwidth on any frequency outside the frequency range(s) within which the equipment is designed to operate shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 $\log_{10}$ p (watts), dB. However, in the 100 kHz band immediately outside the equipment's operating frequency range, a resolution bandwidth of 30 kHz may be employed.

4.6.2 In addition to the limit outlined in Section 4.6.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

- (a) The power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:
    - (i) 76 + 10 $\log_{10}$ p (watts), dB, for base and fixed equipment, and
    - (ii) 65 + 10 $\log_{10}$ p (watts), dB, for mobile and portable equipment.
- (b) The e.i.r.p. in the band 1559-1610 MHz shall not exceed −70 dBW/MHz for wideband signal and −80 dBW for discrete emission with bandwidth less than 700 Hz.

RSS-139; 6.6 Transmitter Unwanted Emissions

Equipment shall comply with the limits in (i) and (ii) below.

i. In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 $\log_{10}$ p (watts) dB.
ii. After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 $\log_{10}$ p (watts) dB.

RSS-199; 4.5 Transmitter Unwanted Emissions

Equipment shall comply with the following unwanted emission limits:

for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least 43 + 10 $\log_{10}$ p

1. for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:
    1. 40 + 10 $\log_{10}$ p from the channel edges to 5 MHz away
    2. 43 + 10 $\log_{10}$ p between 5 MHz and X MHz from the channel edges, and
    3. 55 + 10 $\log_{10}$ p at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than 43 + 10 $\log_{10}$ p on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 $\log_{10}$ p at or below 2490.5 MHz.

In (a) and (b), **p** is the transmitter power measured in watts and **X** is 6 MHz or the equipment occupied bandwidth, whichever is greater.

4.7.3 TEST PROTOCOL

Band 41 BRS Low, downlink;						
Spurious Freq. [MHz]	Spurious Level [dBm]	Pin [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -

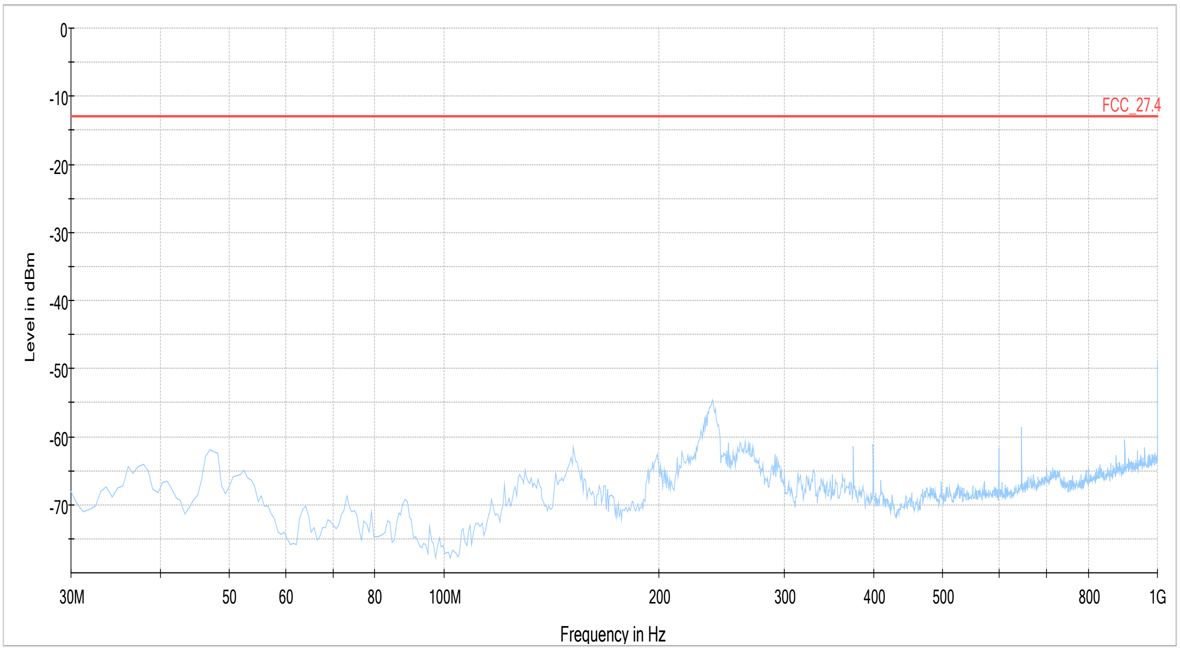
Band 41 BRS Mid, downlink;						
Spurious Freq. [MHz]	Spurious Level [dBm]	Pin [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -

Band 41 BRS High, downlink;						
Spurious Freq. [MHz]	Spurious Level [dBm]	Pin [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -
-	-	-4.3	RMS	100	-13.0	- - -

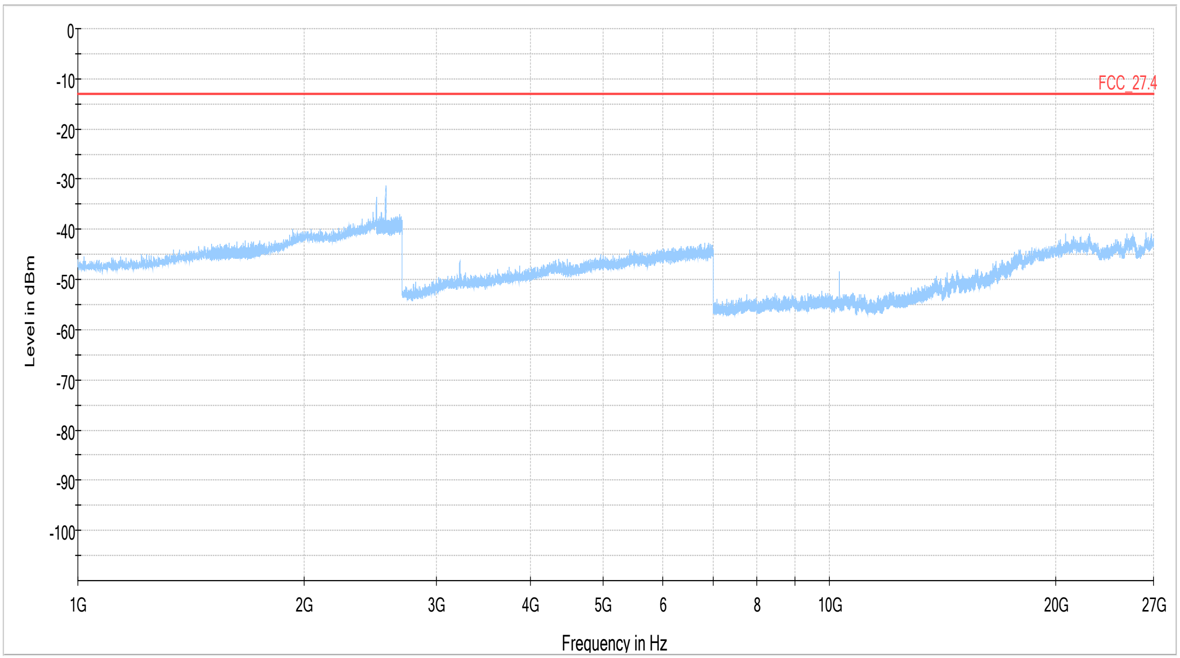
Remark:
Please see next sub-clause for the measurement plot.
The three required test frequencies (low, mid, high) were injected simultaneously conducted into the EUT.
The RF output ports were terminated with 50 Ohm
Pin: The composite power of all three channels.

4.7.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

Frequency Band = Band 41 (BRS Low), Test Frequency = low, Direction = RF downlink (S01_AA01)

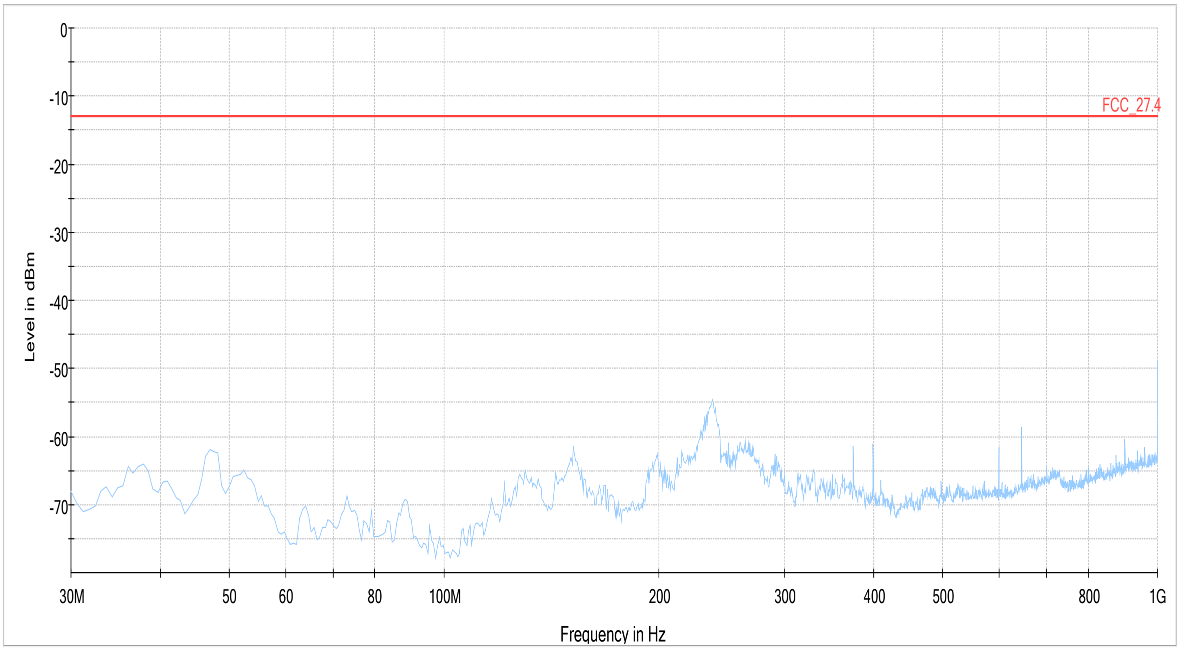


30 MHz - 1 GHz

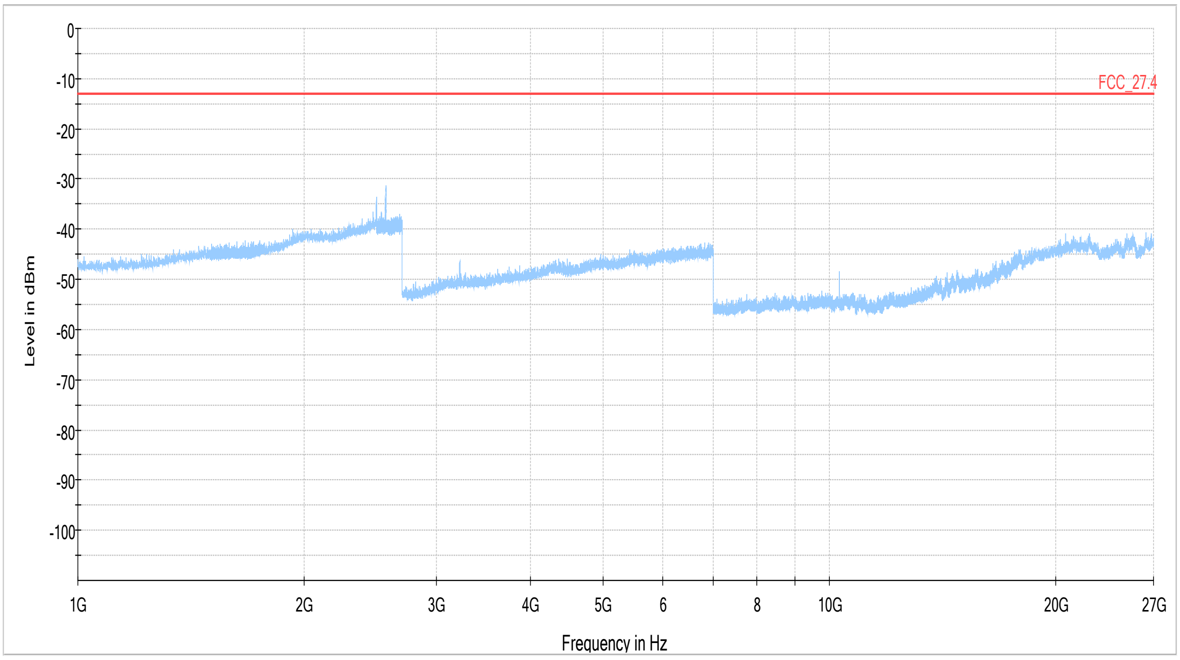


1 GHz - 27 GHz

Frequency Band = Band 41 (BRS Low), Test Frequency = mid, Direction = RF downlink (S01_AA01)

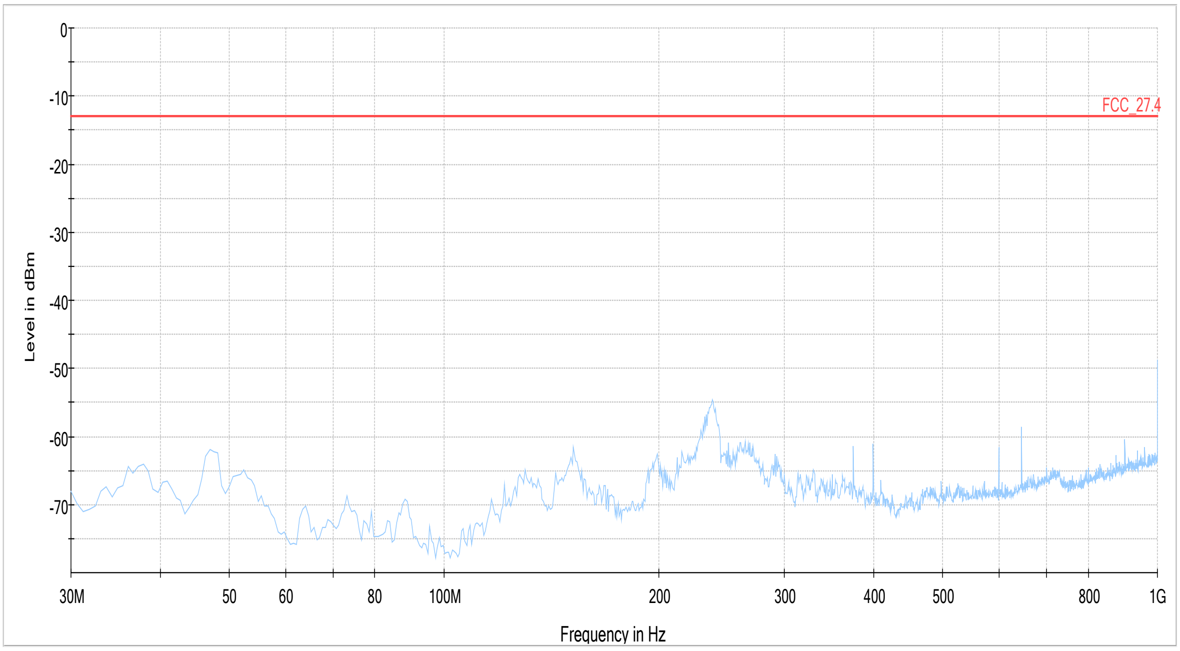


30 MHz - 1 GHz

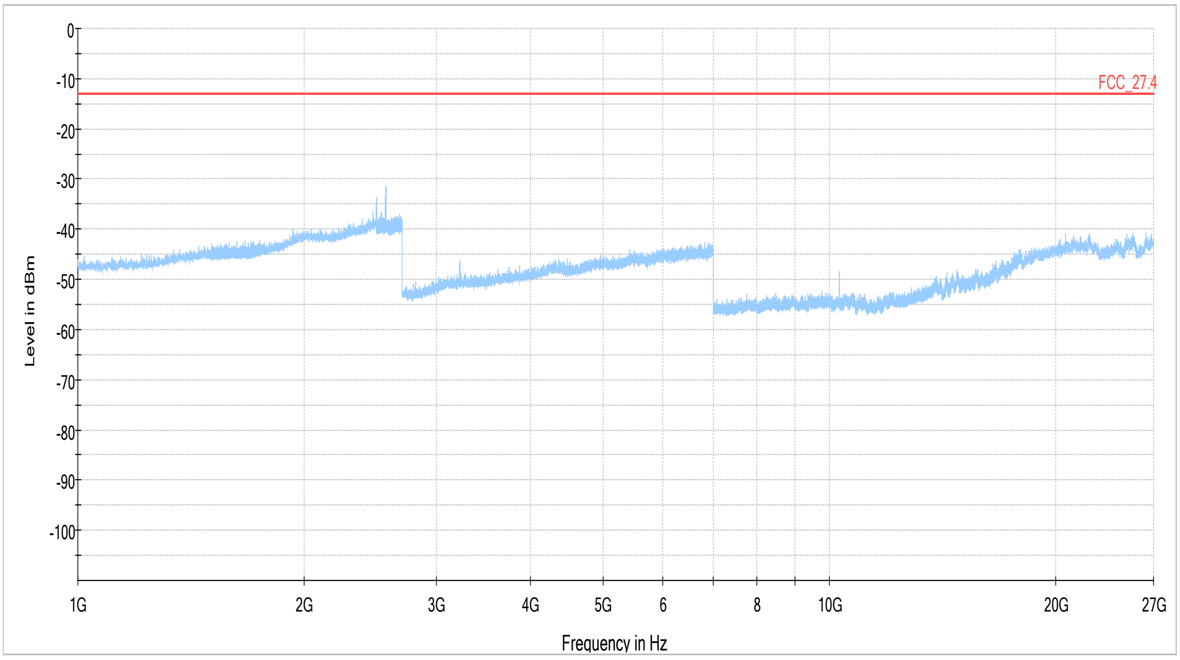


1 GHz - 27 GHz

Frequency Band = Band 41 (BRS Low), Test Frequency = high, Direction = RF downlink (S01_AA01)

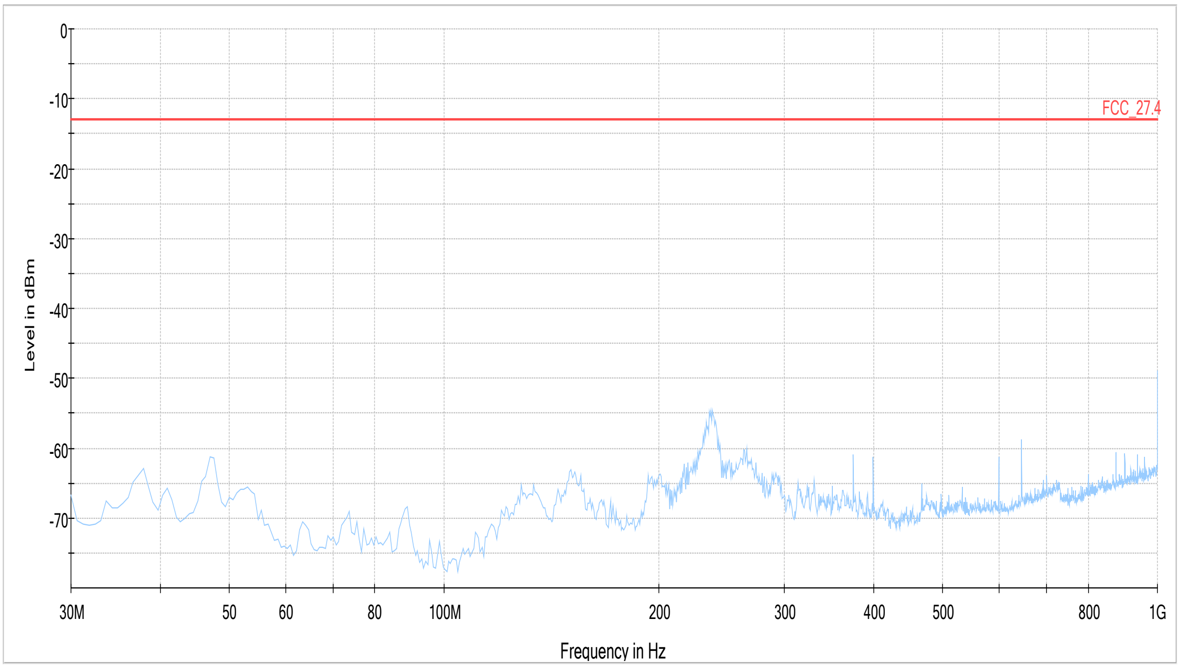


30 MHz - 1 GHz

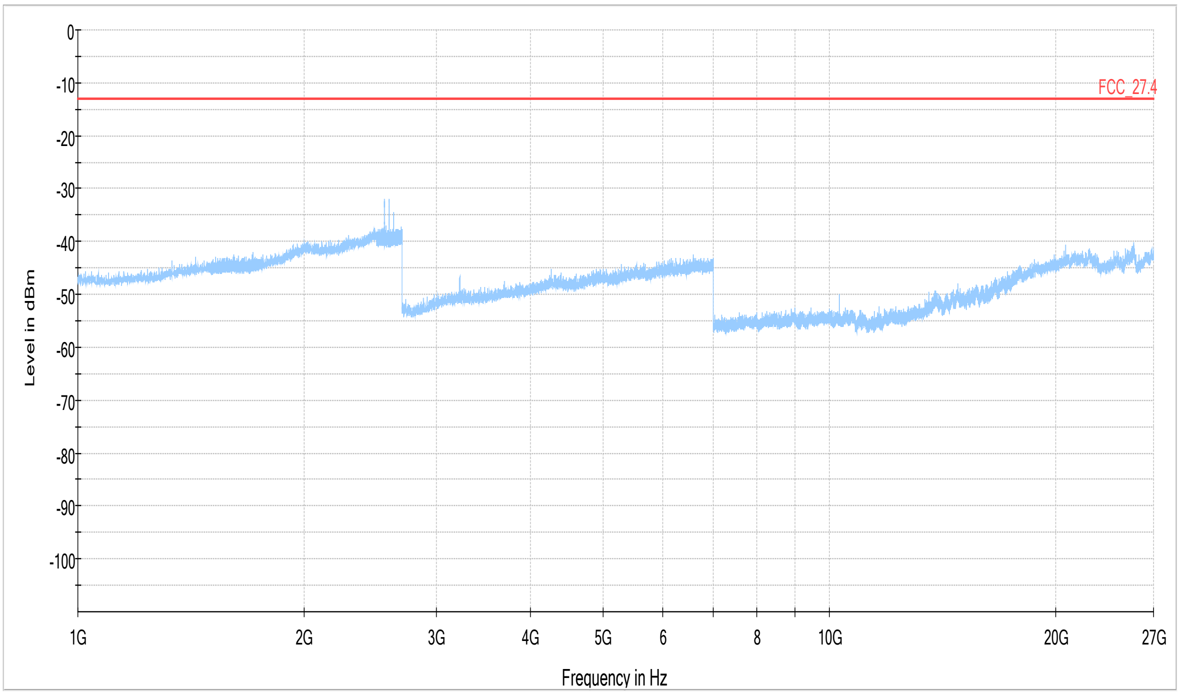


1 GHz - 27 GHz

Frequency Band = Band 41 (BRS Mid), Test Frequency = low, Direction = RF downlink (S01_AA01)

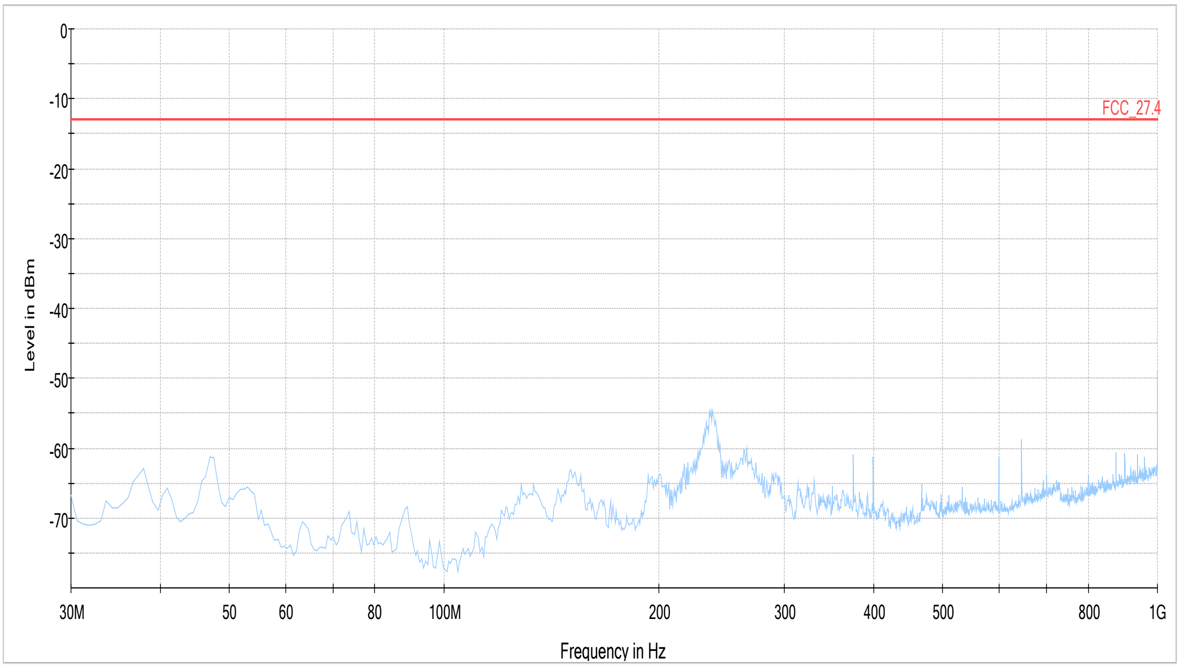


30 MHz - 1 GHz

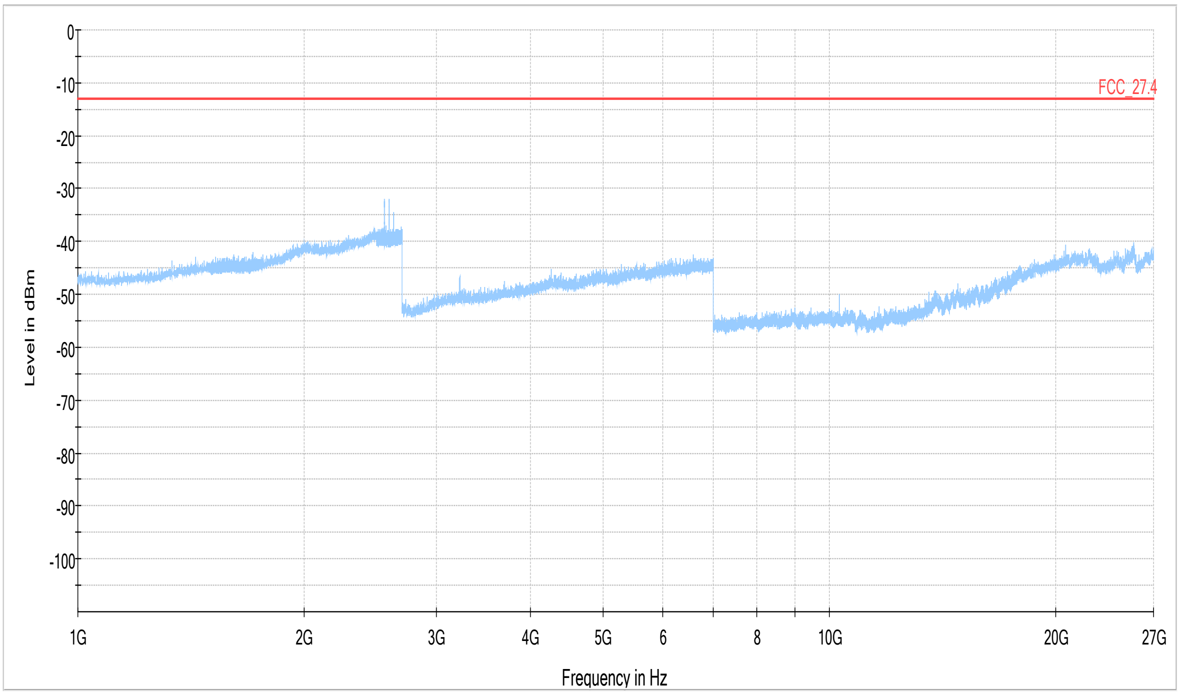


1 GHz - 27 GHz

Frequency Band = Band 41 (BRS Mid), Test Frequency = mid, Direction = RF downlink (S01_AA01)

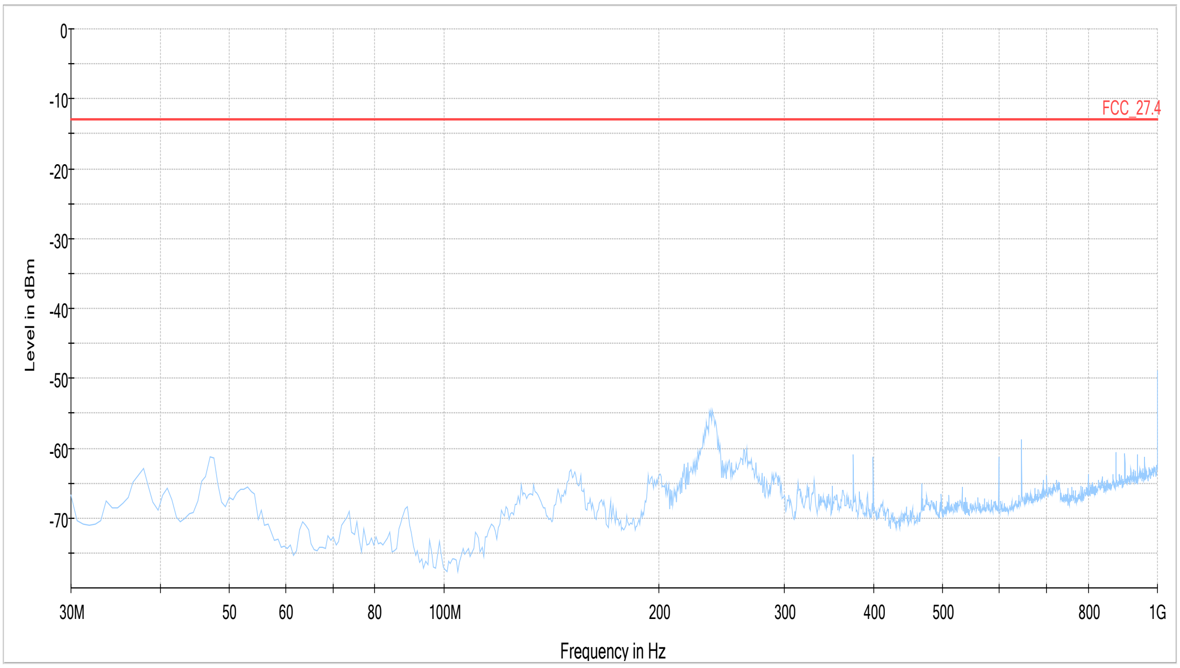


30 MHz - 1 GHz

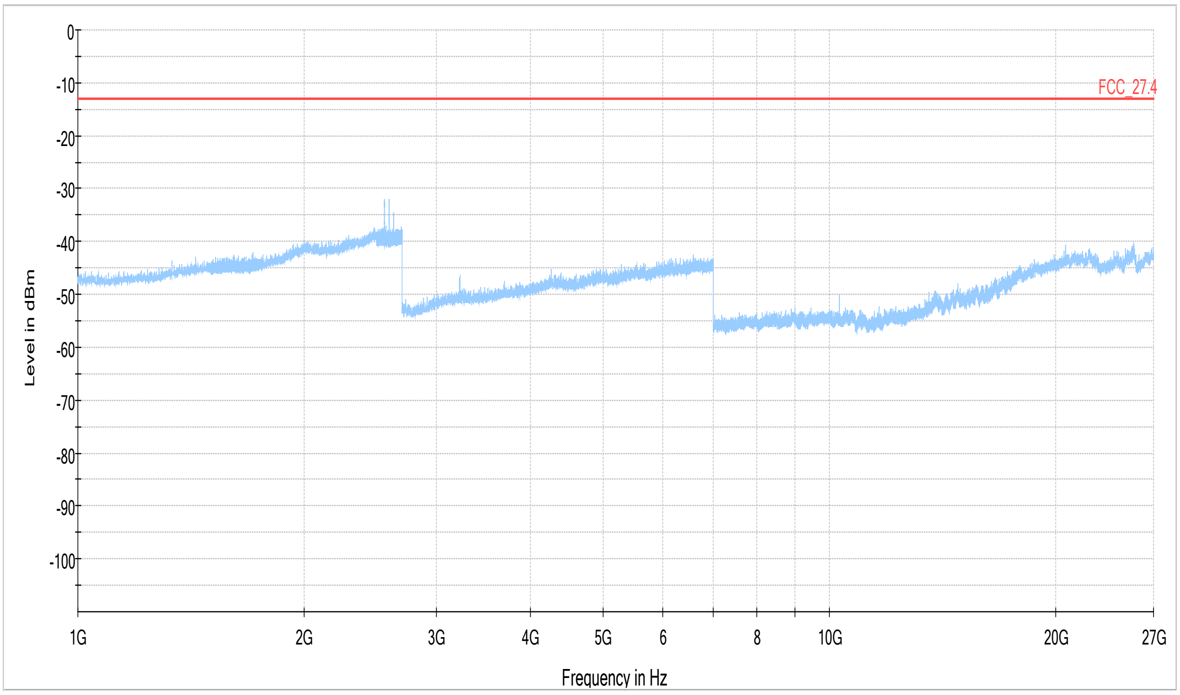


1 GHz - 27 GHz

Frequency Band = Band 41 (BRS Mid), Test Frequency = high, Direction = RF downlink (S01_AA01)

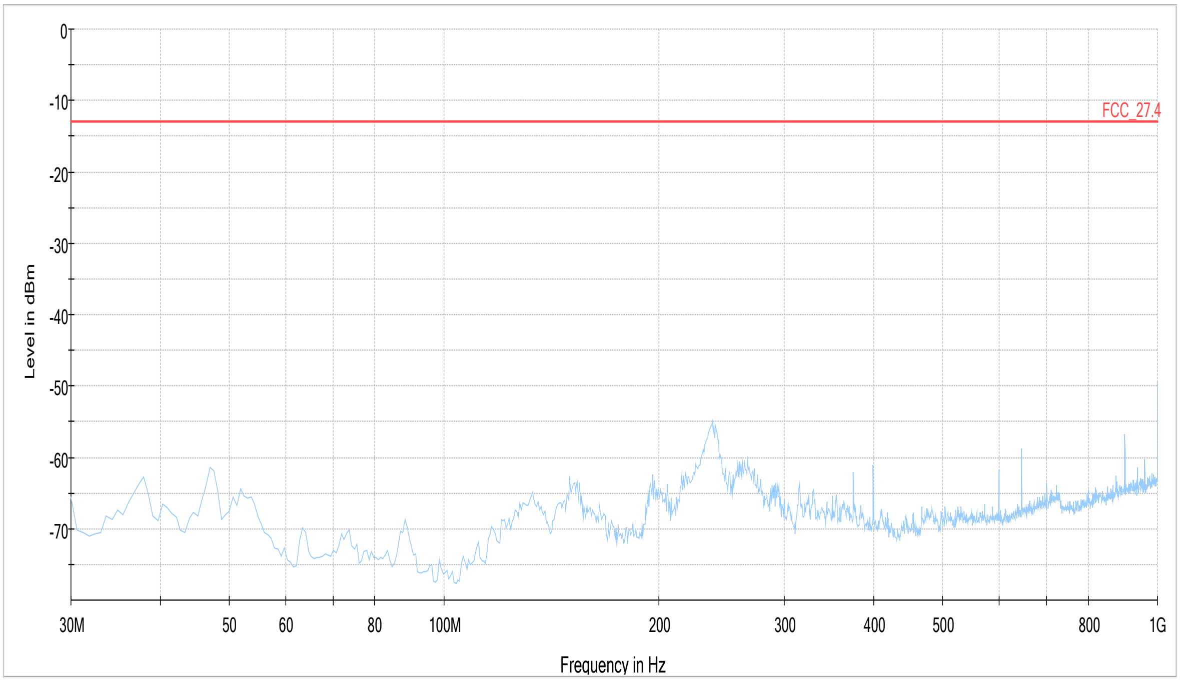


30 MHz - 1 GHz

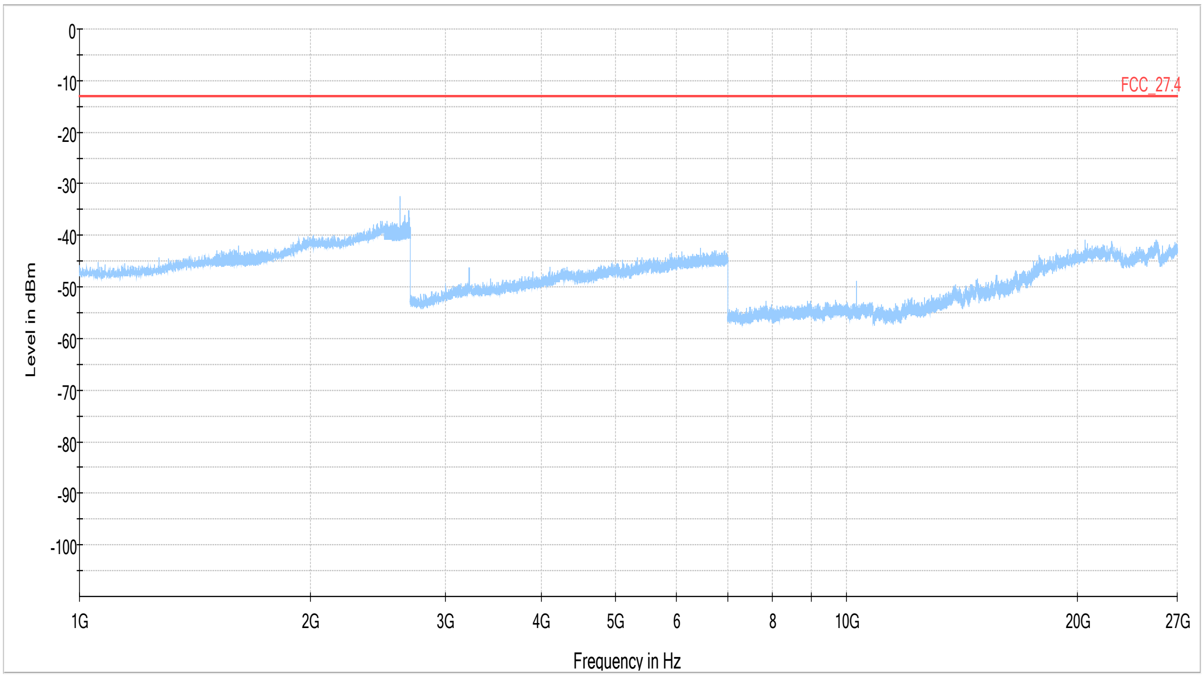


1 GHz - 27 GHz

Frequency Band = Band 41 (BRS High), Test Frequency = low, Direction = RF downlink (S01_AA01)

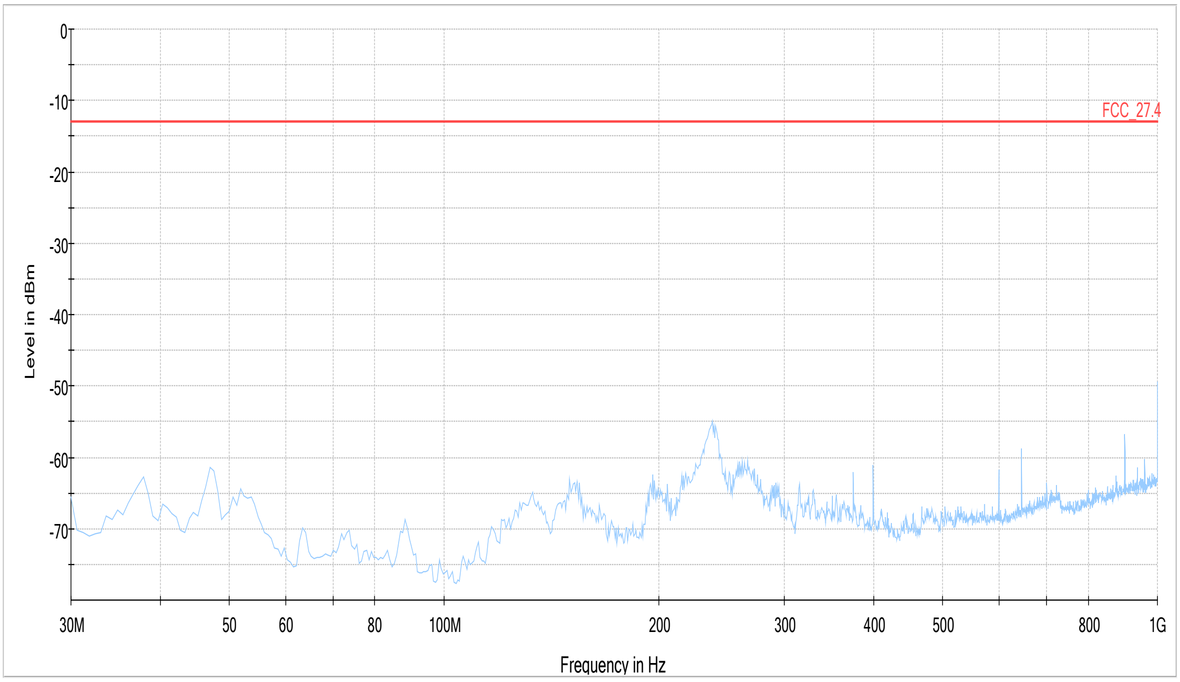


30 MHz - 1 GHz

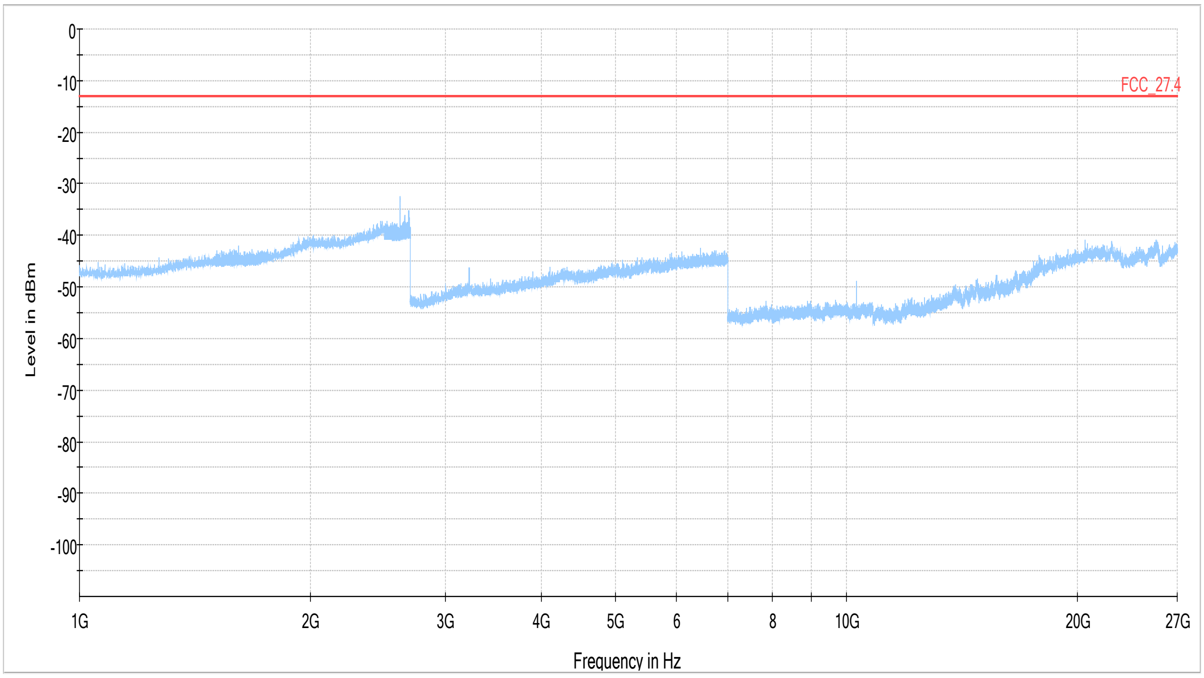


1 GHz - 27 GHz

Frequency Band = Band 41 (BRS High), Test Frequency = mid, Direction = RF downlink (S01_AA01)

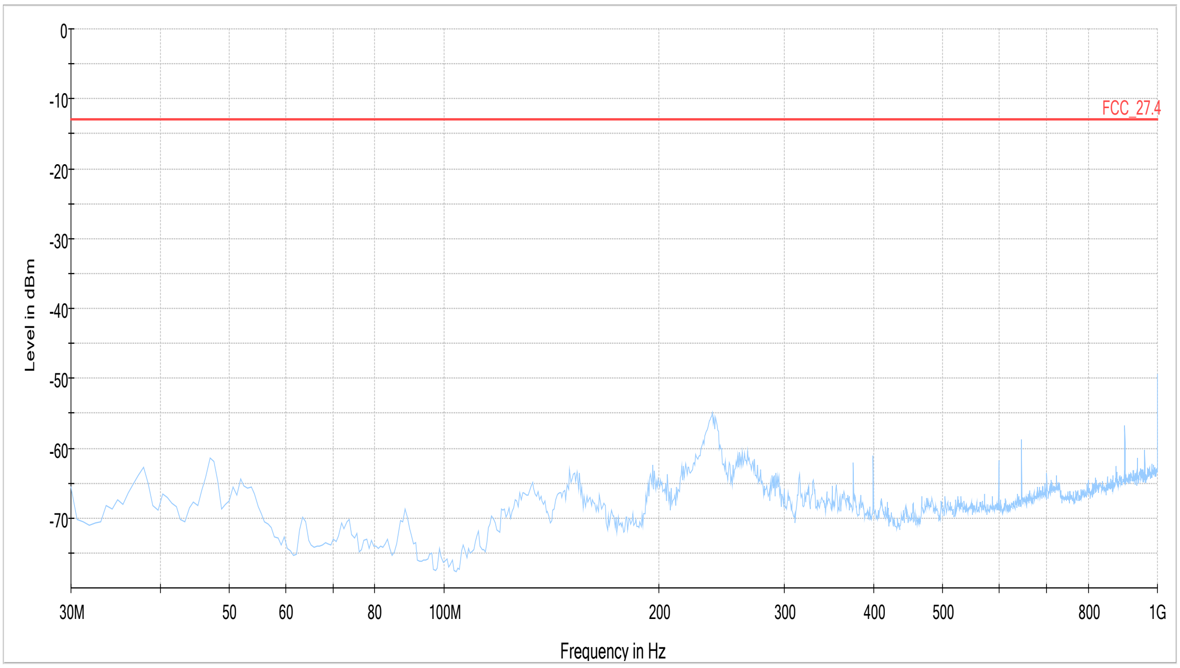


30 MHz - 1 GHz

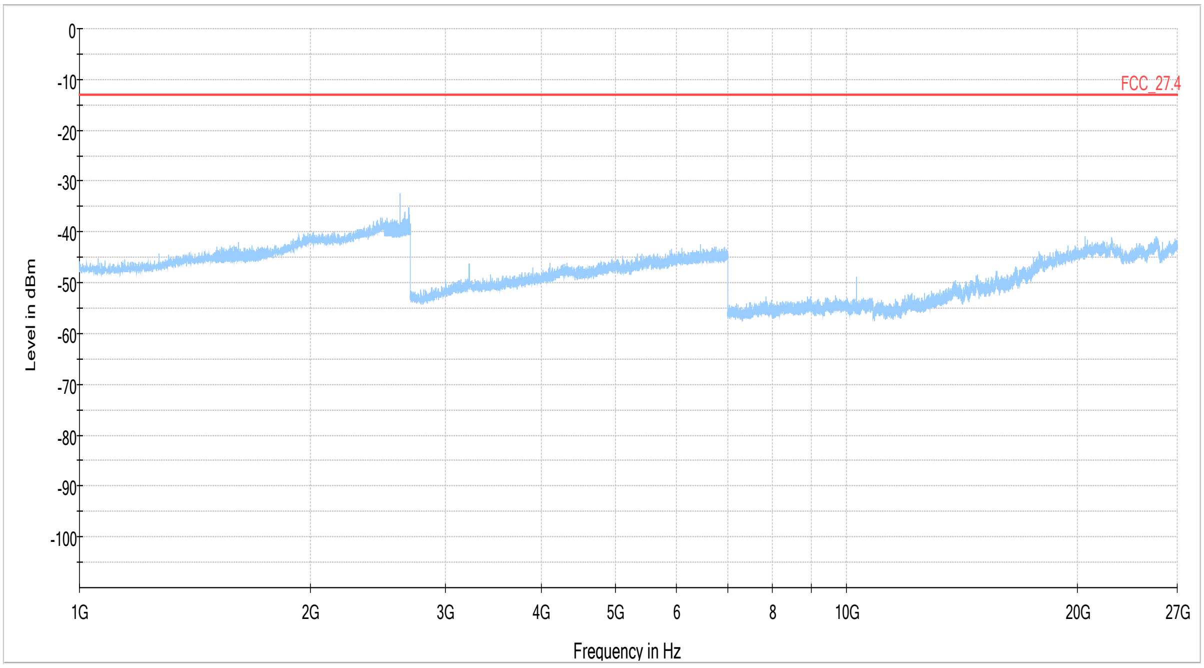


1 GHz - 27 GHz

Frequency Band = Band 41 (BRS High), Test Frequency = high, Direction = RF downlink (S01_AA01)



30 MHz - 1 GHz



1 GHz - 27 GHz

4.7.5 TEST EQUIPMENT USED

- Radiated Emissions

5 TEST EQUIPMENT

1 R&S TS8997
EN300328/301893/FCC cond. Test Lab

Ref.No.	Device Name	Description	Manufacturer	Serial Number	Last Calibration	Calibration Due
1.1	SMB100A	Signal Generator 9 kHz - 6 GHz	Rohde & Schwarz	107695	2017-07	2020-07
1.2	MFS	Rubidium Frequency Standard	Datum-Beverly	5489/001	2017-07	2018-07
1.3	1515 / 93459	Broadband Power Divider SMA (Aux)	Weinschel Associates	LN673		
1.4	FSV30	Signal Analyzer 10 Hz - 30 GHz	Rohde & Schwarz	103005	2016-02	2018-02
1.5	Fluke 177	Digital Multimeter 03 (Multimeter)	Fluke Europe B.V.	86670383	2016-02	2018-02
1.6	VT 4002	Climatic Chamber	Vötsch	58566002150010	2016-03	2018-03
1.7	A8455-4	4 Way Power Divider (SMA)		-		
1.8	Opus10 THI (8152.00)	ThermoHygro Datalogger 03 (Environ)	Lufft Mess- und Regeltechnik GmbH	7482	2017-03	2019-03
1.9	SMBV100A	Vector Signal Generator 9 kHz - 6 GHz	Rohde & Schwarz	259291	2016-10	2019-10
1.10	OSP120	Switching Unit with integrated power meter	Rohde & Schwarz	101158	2016-11	2018-11

2 Radiated Emissions
Lab to perform radiated emission tests

Ref.No.	Device Name	Description	Manufacturer	Serial Number	Last Calibration	Calibration Due
2.1	NRV-Z1	Sensor Head A	Rohde & Schwarz	827753/005	2017-05	2018-05
2.2	MFS	Rubidium Frequency Normal MFS	Datum GmbH	002	2017-10	2018-10
2.3	Opus10 TPR (8253.00)	ThermoAirpressure Datalogger 13 (Environ)	Lufft Mess- und Regeltechnik GmbH	13936	2017-04	2019-04
2.4	Anechoic Chamber	10.38 x 6.38 x 6.00 m³	Frankonia	none	2016-05	2019-05
2.5	HL 562	Ultralog new biconicals	Rohde & Schwarz	830547/003	2015-06	2018-06
2.6	5HC2700/12750-1.5-KK	High Pass Filter	Trilithic	9942012		
2.7	ASP 1.2/1.8-10 kg	Antenna Mast	Maturo GmbH	-		

Ref.No.	Device Name	Description	Manufacturer	Serial Number	Last Calibration	Calibration Due
2.8	Fully Anechoic Room	8.80m x 4.60m x 4.05m (l x w x h)	Albatross Projects	P26971-647-001-PRB	2015-06	2018-06
2.9	Fluke 177	Digital Multimeter 03 (Multimeter)	Fluke Europe B.V.	86670383	2016-02	2018-02
2.10	JS4-18002600-32-5P	Broadband Amplifier 18 GHz - 26 GHz	Miteq	849785		
2.11	FSW 43	Spectrum Analyzer	Rohde & Schwarz	103779	2016-12	2018-12
2.12	3160-09	Standard Gain / Pyramidal Horn Antenna 26.5 GHz	EMCO Elektronic GmbH	00083069		
2.13	WHKX 7.0/18G-8SS	High Pass Filter	Wainwright	09		
2.14	4HC1600/12750-1.5-KK	High Pass Filter	Trilithic	9942011		
2.15	Chroma 6404	AC Power Source	Chroma ATE INC.	64040001304		
2.16	JS4-00102600-42-5A	Broadband Amplifier 30 MHz - 26 GHz	Miteq	619368		
2.17	TT 1.5 WI	Turn Table	Maturo GmbH	-		
2.18	HL 562 Ultralog	Log.-per. Antenna	Rohde & Schwarz	100609	2016-04	2019-04
2.19	3160-10	Standard Gain / Pyramidal Horn Antenna 40 GHz	EMCO Elektronic GmbH	00086675		
2.20	5HC3500/18000-1.2-KK	High Pass Filter	Trilithic	200035008		
2.21	HFH2-Z2	Loop Antenna	Rohde & Schwarz	829324/006	2014-11	2017-11
2.22	Opus10 THI (8152.00)	ThermoHygro Datalogger 12 (Environ)	Lufft Mess- und Regeltechnik GmbH	12482	2017-03	2019-03
2.23	ESR 7	EMI Receiver / Spectrum Analyzer	Rohde & Schwarz	101424	2016-11	2018-11
2.24	JS4-00101800-35-5P	Broadband Amplifier 30 MHz - 18 GHz	Miteq	896037		
2.25	AS 620 P	Antenna mast	HD GmbH	620/37		
2.26	Tilt device Maturo (Rohacell)	Antrieb TD1.5-10kg	Maturo GmbH	TD1.5-10kg/024/3790709		
2.27	ESIB 26	Spectrum Analyzer	Rohde & Schwarz	830482/004	2015-12	2017-12
2.28	PAS 2.5 - 10 kg	Antenna Mast	Maturo GmbH	-		
2.29	AM 4.0	Antenna mast	Maturo GmbH	AM4.0/180/11920513		
2.30	HF 907	Double-ridged horn	Rohde & Schwarz	102444	2015-05	2018-05

3 FCC Conducted Base Station / Repeater EN300328/301893/FCC cond. Test Lab

Ref.No.	Device Name	Description	Manufacturer	Serial Number	Last Calibration	Calibration Due
3.1	FSV40	Signal Analyzer 10 Hz - 40 GHz	Rohde & Schwarz	100886	2017-08	2018-08
3.2	SMBV100A	Vector Signal Generator 9 kHz - 6 GHz	Rohde & Schwarz	255975	2017-08	2020-08
3.3	SMIQ	Vector Signal Generator 9 kHz – 3.3 GHz	Rohde & Schwarz	831389/062	2016-08	2018-08
3.4	SMIQ	Vector Signal Generator 9 kHz – 3.3 GHz	Rohde & Schwarz	831389/063	2016-10	2018-10

The calibration interval is the time interval between “Last Calibration” and “Calibration Due”

6 ANTENNA FACTORS, CABLE LOSS AND SAMPLE CALCULATIONS

This chapter contains the antenna factors with their corresponding path loss of the used measurement path for all antennas as well as the insertion loss of the LISN.

6.1 LISN R&S ESH3-Z5 (150 KHZ – 30 MHZ)

Frequency		Corr.	LISN insertion loss ESH3-Z5	cable loss (incl. 10 dB atten-uator)
MHz		dB	dB	dB
0.15		10.1	0.1	10.0
5		10.3	0.1	10.2
7		10.3	0.2	10.3
10		10.3	0.2	10.3
12		10.7	0.3	10.4
14		10.7	0.3	10.4
16		10.8	0.4	10.4
18		10.9	0.4	10.3
20		10.9	0.4	10.3
22		11.1	0.3	10.6
24		11.1	0.3	10.6
26		11.2	0.3	10.7
28		11.2	0.3	10.7
30		11.3	0.3	10.8

Sample calculation

U_{LISN} (dB µV) = U (dB µV) + Corr. (dB)
U = Receiver reading
LISN Insertion loss = Voltage Division Factor of LISN
Corr. = sum of single correction factors of used LISN, cables, switch units (if used)
Linear interpolation will be used for frequencies in between the values in the table.

6.2 ANTENNA R&S HFH2-Z2 (9 KHZ – 30 MHZ)

Frequency	AF HFH-Z2)	Corr.	cable loss 1 (inside chamber)	cable loss 2 (outside chamber)	cable loss 3 (switch unit)	cable loss 4 (to receiver)	distance corr. (-40 dB/ decade)	d_{Limit} (meas. distance (limit)	d_{used} (meas. distance (used)
MHz	dB (1/m)	dB	dB	dB	dB	dB	dB	m	m
0.009	20.30	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.01	20.45	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.015	20.37	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.02	20.36	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.025	20.38	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.03	20.32	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.05	20.35	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.08	20.30	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.1	20.20	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.2	20.17	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.3	20.14	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.49	20.12	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.490001	20.12	-39.6	0.1	0.1	0.1	0.1	-40	30	3
0.3	20.11	-39.6	0.1	0.1	0.1	0.1	-40	30	3
0.8	20.10	-39.6	0.1	0.1	0.1	0.1	-40	30	3
1	20.09	-39.6	0.1	0.1	0.1	0.1	-40	30	3
2	20.08	-39.6	0.1	0.1	0.1	0.1	-40	30	3
3	20.06	-39.6	0.1	0.1	0.1	0.1	-40	30	3
4	20.05	-39.5	0.2	0.1	0.1	0.1	-40	30	3
5	20.05	-39.5	0.2	0.1	0.1	0.1	-40	30	3
6	20.02	-39.5	0.2	0.1	0.1	0.1	-40	30	3
8	19.95	-39.5	0.2	0.1	0.1	0.1	-40	30	3
10	19.83	-39.4	0.2	0.1	0.2	0.1	-40	30	3
12	19.71	-39.4	0.2	0.1	0.2	0.1	-40	30	3
14	19.54	-39.4	0.2	0.1	0.2	0.1	-40	30	3
16	19.53	-39.3	0.3	0.1	0.2	0.1	-40	30	3
18	19.50	-39.3	0.3	0.1	0.2	0.1	-40	30	3
20	19.57	-39.3	0.3	0.1	0.2	0.1	-40	30	3
22	19.61	-39.3	0.3	0.1	0.2	0.1	-40	30	3
24	19.61	-39.3	0.3	0.1	0.2	0.1	-40	30	3
26	19.54	-39.3	0.3	0.1	0.2	0.1	-40	30	3
28	19.46	-39.2	0.3	0.1	0.3	0.1	-40	30	3
30	19.73	-39.1	0.4	0.1	0.3	0.1	-40	30	3

Sample calculation

E (dB µV/m) = U (dB µV) + AF (dB 1/m) + Corr. (dB)
U = Receiver reading
AF = Antenna factor
Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)
distance correction = -40 * LOG (d_{Limit}/ d_{used})
Linear interpolation will be used for frequencies in between the values in the table.
Table shows an extract of values

6.3 ANTENNA R&S HL562 (30 MHZ – 1 GHZ)

(d_{Limit} = 3 m)

Frequency MHz	AF R&S HL562 dB (1/m)	Corr. dB	cable loss 1 (inside chamber) dB	cable loss 2 (outside chamber) dB	cable loss 3 (switch unit) dB	cable loss 4 (to receiver) dB	distance corr. (-20 dB/ decade) dB	d_{Limit} (meas. distance (limit)) m	d_{used} (meas. distance (used)) m
30	18.6	0.6	0.29	0.04	0.23	0.02	0.0	3	3
50	6.0	0.9	0.39	0.09	0.32	0.08	0.0	3	3
100	9.7	1.2	0.36	0.14	0.47	0.08	0.0	3	3
150	7.9	1.6	0.73	0.20	0.39	0.12	0.0	3	3
200	7.6	1.9	0.84	0.21	0.70	0.11	0.0	3	3
250	9.5	2.1	0.98	0.24	0.80	0.13	0.0	3	3
300	11.0	2.3	1.04	0.26	0.89	0.15	0.0	3	3
350	12.4	2.6	1.18	0.31	0.96	0.13	0.0	3	3
400	13.6	2.9	1.28	0.35	1.03	0.19	0.0	3	3
450	14.7	3.1	1.39	0.38	1.11	0.22	0.0	3	3
500	15.6	3.2	1.44	0.39	1.20	0.19	0.0	3	3
550	16.3	3.5	1.55	0.46	1.24	0.23	0.0	3	3
600	17.2	3.5	1.59	0.43	1.29	0.23	0.0	3	3
650	18.1	3.6	1.67	0.34	1.35	0.22	0.0	3	3
700	18.5	3.6	1.67	0.42	1.41	0.15	0.0	3	3
750	19.1	4.1	1.87	0.34	1.46	0.25	0.0	3	3
800	19.6	4.1	1.90	0.46	1.51	0.25	0.0	3	3
850	20.1	4.4	1.99	0.60	1.56	0.27	0.0	3	3
900	20.8	4.7	2.14	0.60	1.63	0.29	0.0	3	3
950	21.1	4.8	2.22	0.60	1.66	0.33	0.0	3	3
1000	21.6	4.9	2.23	0.61	1.71	0.30	0.0	3	3

(d_{Limit} = 10 m)

30	18.6	-9.9	0.29	0.04	0.23	0.02	-10.3	10	3
50	6.0	-9.6	0.39	0.09	0.32	0.08	-10.3	10	3
100	9.7	-9.2	0.36	0.14	0.47	0.08	-10.3	10	3
150	7.9	-8.8	0.73	0.20	0.39	0.12	-10.3	10	3
200	7.6	-8.6	0.84	0.21	0.70	0.11	-10.3	10	3
250	9.5	-8.3	0.98	0.24	0.80	0.13	-10.3	10	3
300	11.0	-8.1	1.04	0.26	0.89	0.15	-10.3	10	3
350	12.4	-7.9	1.18	0.31	0.96	0.13	-10.3	10	3
400	13.6	-7.6	1.28	0.35	1.03	0.19	-10.3	10	3
450	14.7	-7.4	1.39	0.38	1.11	0.22	-10.3	10	3
500	15.6	-7.2	1.44	0.39	1.20	0.19	-10.3	10	3
550	16.3	-7.0	1.55	0.46	1.24	0.23	-10.3	10	3
600	17.2	-6.9	1.59	0.43	1.29	0.23	-10.3	10	3
650	18.1	-6.9	1.67	0.34	1.35	0.22	-10.3	10	3
700	18.5	-6.8	1.67	0.42	1.41	0.15	-10.3	10	3
750	19.1	-6.3	1.87	0.34	1.46	0.25	-10.3	10	3
800	19.6	-6.3	1.90	0.46	1.51	0.25	-10.3	10	3
850	20.1	-6.0	1.99	0.60	1.56	0.27	-10.3	10	3
900	20.8	-5.8	2.14	0.60	1.63	0.29	-10.3	10	3
950	21.1	-5.6	2.22	0.60	1.66	0.33	-10.3	10	3
1000	21.6	-5.6	2.23	0.61	1.71	0.30	-10.3	10	3

Sample calculation

E (dB µV/m) = U (dB µV) + AF (dB 1/m) + Corr. (dB)
U = Receiver reading
AF = Antenna factor
Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)
distance correction = -20 * LOG (d_{Limit}/ d_{used})
Linear interpolation will be used for frequencies in between the values in the table.
Tables show an extract of values.

6.4 ANTENNA R&S HF907 (1 GHZ – 18 GHZ)

Frequency	AF R&S HF907	Corr.	cable loss 1 (relay + cable inside chamber)	cable loss 2 (outside chamber)	cable loss 3 (switch unit, atten-uator & pre-amp)	cable loss 4 (to receiver)		
MHz	dB (1/m)	dB	dB	dB	dB	dB		
1000	24.4	-19.4	0.99	0.31	-21.51	0.79		
2000	28.5	-17.4	1.44	0.44	-20.63	1.38		
3000	31.0	-16.1	1.87	0.33	-19.85	1.33		
4000	33.1	-14.7	2.41	0.67	-19.13	1.31		
5000	34.4	-13.7	2.78	0.86	-18.71	1.40		
6000	34.7	-12.7	2.74	0.90	-17.83	1.47		
7000	35.6	-11.0	2.82	0.86	-16.19	1.46		

Frequency	AF R&S HF907	Corr.	cable loss 1 (relay inside chamber)	cable loss 2 (inside chamber)	cable loss 3 (outside chamber)	cable loss 4 (switch unit, atten-uator & pre-amp)	cable loss 5 (to receiver)	used for FCC 15.247
MHz	dB (1/m)	dB	dB	dB	dB	dB	dB	
3000	31.0	-23.4	0.47	1.87	0.33	-27.58	1.33	
4000	33.1	-23.3	0.36	2.41	0.67	-28.23	1.31	
5000	34.4	-21.7	0.61	2.78	0.86	-27.35	1.40	
6000	34.7	-21.2	0.38	2.74	0.90	-26.89	1.47	
7000	35.6	-19.8	0.66	2.82	0.86	-25.58	1.46	

Frequency	AF R&S HF907	Corr.	cable loss 1 (relay inside chamber)	cable loss 2 (High Pass)	cable loss 3 (pre-amp)	cable loss 4 (inside chamber)	cable loss 5 (outside chamber)	cable loss 6 (to receiver)
MHz	dB (1/m)	dB	dB	dB	dB	dB	dB	dB
7000	35.6	-57.3	0.36	1.28	-62.72	2.66	0.94	1.46
8000	36.3	-56.3	0.69	0.71	-61.49	2.84	1.00	1.53
9000	37.1	-55.3	0.68	0.65	-60.80	3.06	1.09	1.60
10000	37.5	-56.2	0.70	0.34	-61.91	3.28	1.20	1.67
11000	37.5	-55.3	0.80	0.61	-61.40	3.43	1.27	1.70
12000	37.6	-53.7	0.84	0.42	-59.70	3.53	1.26	1.73
13000	38.2	-53.5	0.83	0.44	-59.81	3.75	1.32	1.83
14000	39.9	-56.3	0.91	0.33	-63.03	3.91	1.40	1.77
15000	40.9	-54.1	0.98	0.34	-61.05	4.02	1.44	1.83
16000	41.3	-54.1	1.23	0.49	-61.51	4.17	1.51	1.85
17000	42.8	-54.4	1.36	0.76	-62.36	4.34	1.53	2.00
18000	44.2	-54.7	1.70	0.33	-62.88	4.41	1.55	1.91

Sample calculation

E (dB µV/m) = U (dB µV) + AF (dB 1/m) + Corr. (dB)
U = Receiver reading
AF = Antenna factor
Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)
Linear interpolation will be used for frequencies in between the values in the table.
Tables show an extract of values.

6.5 ANTENNA EMCO 3160-09 (18 GHZ – 26.5 GHZ)

Frequency	AF EMCO 3160-09	Corr.
MHz	dB (1/m)	dB
18000	40.2	-23.5
18500	40.2	-23.2
19000	40.2	-22.0
19500	40.3	-21.3
20000	40.3	-20.3
20500	40.3	-19.9
21000	40.3	-19.1
21500	40.3	-19.1
22000	40.3	-18.7
22500	40.4	-19.0
23000	40.4	-19.5
23500	40.4	-19.3
24000	40.4	-19.8
24500	40.4	-19.5
25000	40.4	-19.3
25500	40.3	-20.4
26000	40.3	-21.3
26500	40.3	-21.1

cable loss 1 (inside chamber)	cable loss 2 (pre-amp)	cable loss 3 (inside chamber)	cable loss 4 (switch unit)	cable loss 5 (to receiver)
dB	dB	dB	dB	dB
0.72	-35.85	6.20	2.81	2.65
0.69	-35.71	6.46	2.76	2.59
0.76	-35.44	6.69	3.15	2.79
0.74	-35.07	7.04	3.11	2.91
0.72	-34.49	7.30	3.07	3.05
0.78	-34.46	7.48	3.12	3.15
0.87	-34.07	7.61	3.20	3.33
0.90	-33.96	7.47	3.28	3.19
0.89	-33.57	7.34	3.35	3.28
0.87	-33.66	7.06	3.75	2.94
0.88	-33.75	6.92	3.77	2.70
0.90	-33.35	6.99	3.52	2.66
0.88	-33.99	6.88	3.88	2.58
0.91	-33.89	7.01	3.93	2.51
0.88	-33.00	6.72	3.96	2.14
0.89	-34.07	6.90	3.66	2.22
0.86	-35.11	7.02	3.69	2.28
0.90	-35.20	7.15	3.91	2.36

Sample calculation

E (dB µV/m) = U (dB µV) + AF (dB 1/m) + Corr. (dB)
U = Receiver reading
AF = Antenna factor
Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)
Linear interpolation will be used for frequencies in between the values in the table.
Table shows an extract of values.

6.6 ANTENNA EMCO 3160-10 (26.5 GHZ – 40 GHZ)

Frequency	AF EMCO 3160-10	Corr.	cable loss 1 (inside chamber)	cable loss 2 (outside chamber)	cable loss 3 (switch unit)	cable loss 4 (to receiver)	distance corr. (-20 dB/ decade)	d_{Limit} (meas. distance (limit))	d_{used} (meas. distance (used))
GHz	dB (1/m)	dB	dB	dB	dB	dB	dB	m	m
26.5	43.4	-11.2	4.4				-15.6	3	0.3
27.0	43.4	-11.2	4.4				-15.6	3	0.3
28.0	43.4	-11.1	4.5				-15.6	3	0.3
29.0	43.5	-11.0	4.6				-15.6	3	0.3
30.0	43.5	-10.9	4.7				-15.6	3	0.3
31.0	43.5	-10.8	4.7				-15.6	3	0.3
32.0	43.5	-10.7	4.8				-15.6	3	0.3
33.0	43.6	-10.7	4.9				-15.6	3	0.3
34.0	43.6	-10.6	5.0				-15.6	3	0.3
35.0	43.6	-10.3	5.1				-15.6	3	0.3
36.0	43.6	-10.4	5.1				-15.6	3	0.3
37.0	43.7	-10.3	5.2				-15.6	3	0.3
38.0	43.7	-10.2	5.3				-15.6	3	0.3
39.0	43.7	-10.2	5.4				-15.6	3	0.3
40.0	43.8	-10.1	5.5				-15.6	3	0.3

Sample calculation

E (dB µV/m) = U (dB µV) + AF (dB 1/m) + Corr. (dB)
U = Receiver reading
AF = Antenna factor
Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)
Linear interpolation will be used for frequencies in between the values in the table.
distance correction = -20 * LOG (d_{Limit}/ d_{used})
Linear interpolation will be used for frequencies in between the values in the table.
Table shows an extract of values.

7 MEASUREMENT UNCERTAINTIES

Test Case(s)	Parameter	Uncertainty
- Field strength of spurious radiation	Power	± 5.5 dB
- Out-of-band rejection - Occupied Bandwidth - Input versus output spectrum	Power Frequency	± 2.9 dB ± 11.2 kHz
- Effective radiated power, mean output power and zone enhancer gain - Peak to Average Ratio	Power	± 2.2 dB
- Out-of-band emission limits - Conducted Spurious Emissions at Antenna Terminal	Power Frequency	± 2.2 dB ± 11.2 kHz

8 PHOTO REPORT

Please see separate photo report.