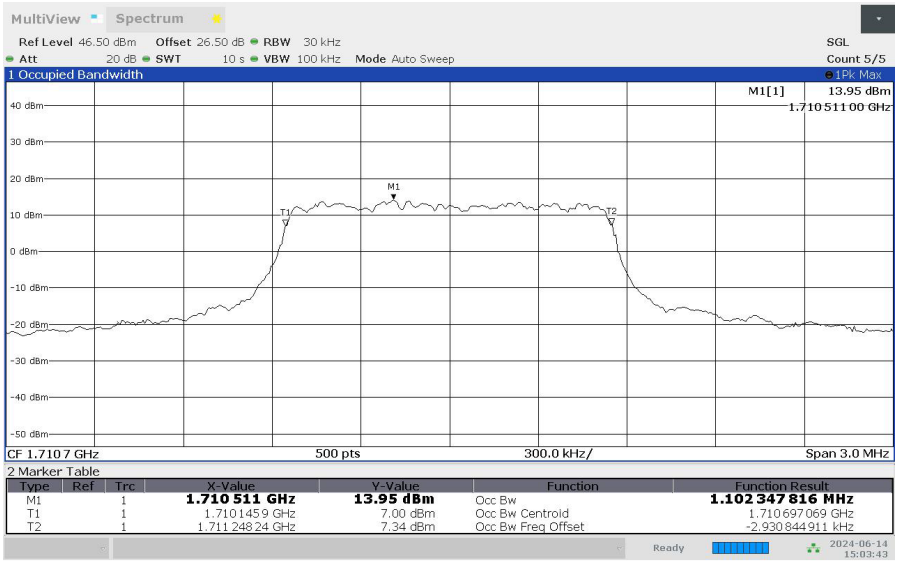
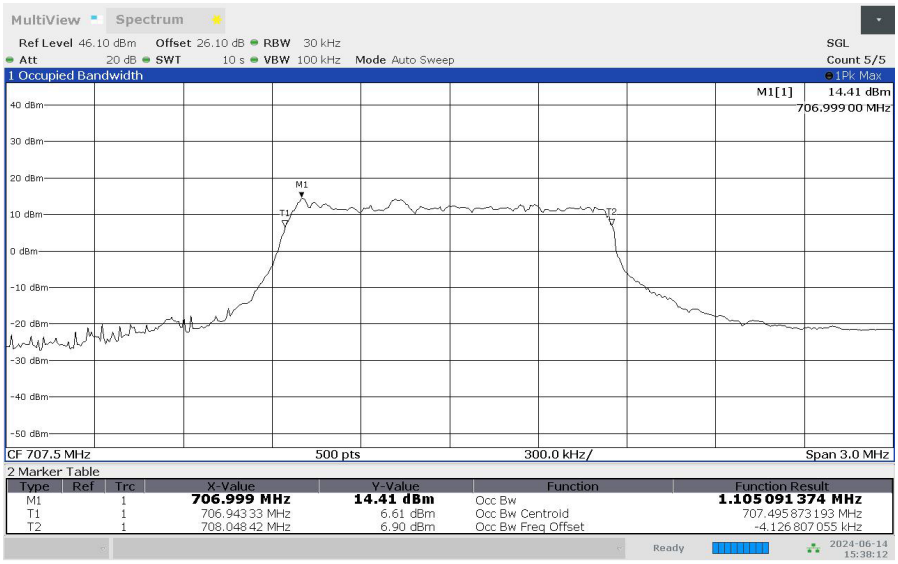
5.15.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Technology = CAT-M1, Radio Technology = eFDD 4 QPSK, Operating Frequency = low channel, ChBW = 1.4 MHz, Ressource Blocks = 6
(S01_BC08)



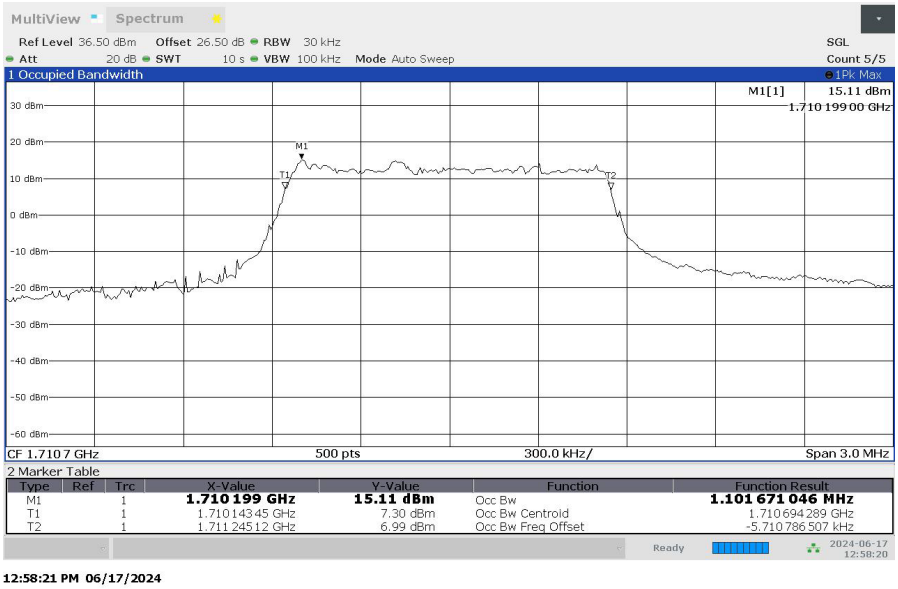
03:03:44 PM 06/14/2024

Technology = CAT-M1, Radio Technology = eFDD 12 QPSK, Operating Frequency = mid channel, ChBW = 1.4 MHz, Ressource Blocks = 6
(S01_BC08)



03:38:13 PM 06/14/2024

Technology = CAT-M1, Radio Technology = eFDD 66 QPSK, Operating Frequency = low channel, ChBW = 1.4 MHz, Ressource Blocks = 6
(S01_BC08)



12:58:21 PM 06/17/2024

5.15.5 TEST EQUIPMENT USED

- Radio Lab

5.16 EMISSION AND OCCUPIED BANDWIDTH

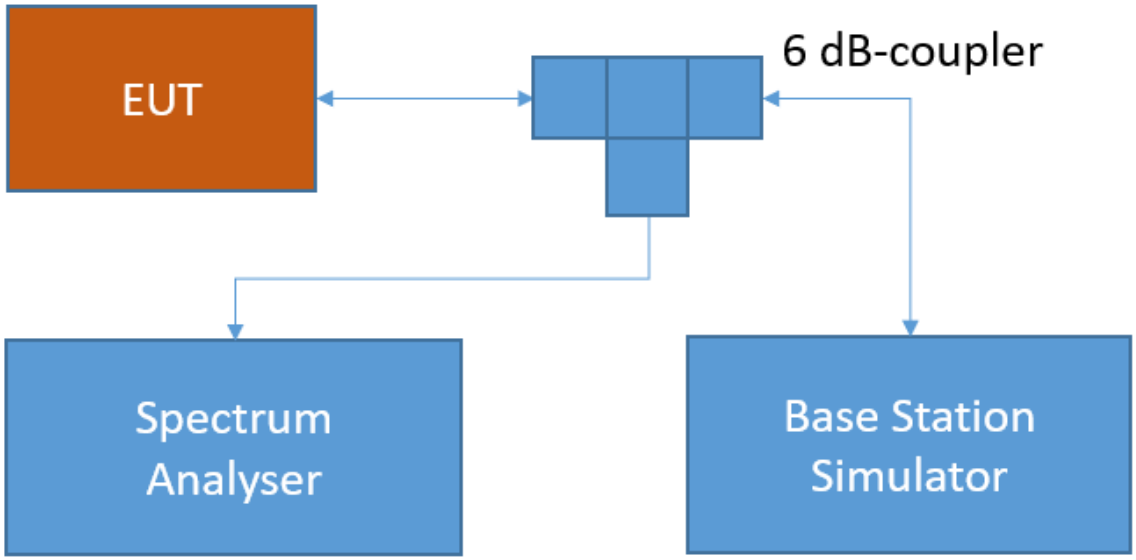
Standard **FCC PART 27 Subpart C**

The test was performed according to:
ANSI C63.26: 2015; 5.4.3 (relative meas. Procedure [26dB for GSM, EGDE, WCDMA, HSDPA, HSUPA]) 5.4.4 (Power bandwidth (99%))

5.16.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable conducted spurious emission test case per FCC §2.1049 and RSS-GEN 6.7. The limit and the requirements come from the applicable rule part and ISED RSS-Standard for the operating band of the cellular device.

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



Test Setup FCC / ISED Cellular;
Emission and occupied bandwidth

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.

5.16.2 TEST REQUIREMENTS / LIMITS

FCC Part 2.1049; Occupied Bandwidth:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

(h) Transmitters employing digital modulation techniques—when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the user.

(i) Transmitters designed for other types of modulation—when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal should be supplied.

RSS-GEN; 6.7 Occupied Bandwidth

The emission bandwidth (×dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated × dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3× the resolution bandwidth.

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3×RBW.

Note: Video averaging is not permitted.

A peak, or peak hold, may be used in place of the sampling detector as this may produce a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold may be necessary to determine the occupied bandwidth if the device is not transmitting continuously.

The trace data points are recovered and are directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded.
The difference between the two recorded frequencies is the 99% occupied bandwidth.

5.16.3 TEST PROTOCOL

Ambient temperature: 20 - 28 °C
Relative humidity: 30 - 40 %

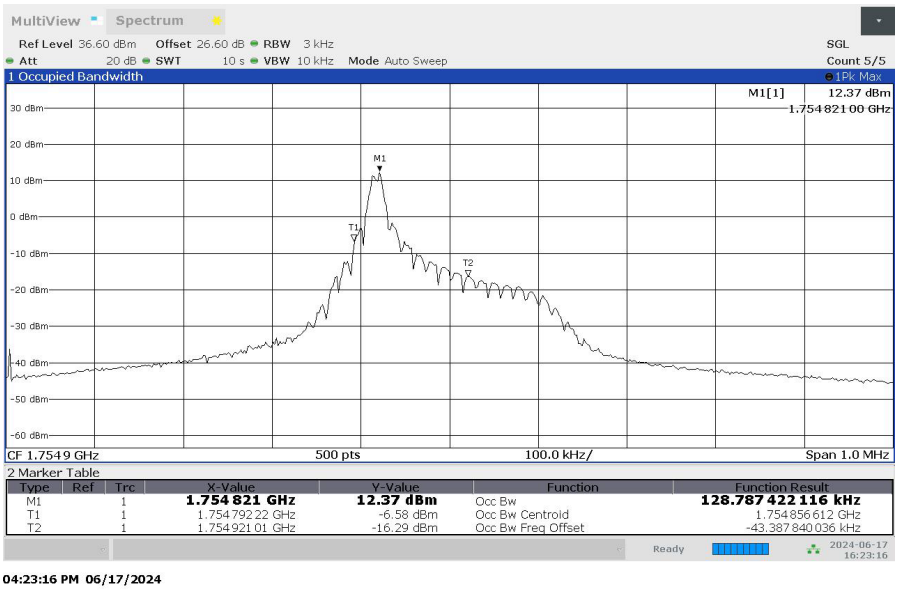
Radio Technology		Channel	Ressource Blocks / Subcarrier	Bandwidth [MHz]	26 dB BW [kHz]	99 % BW [kHz]
NB-IoT	eFDD 4 QPSK	low	12	0.2	-	126
NB-IoT	eFDD 4 QPSK	mid	12	0.2	-	124
NB-IoT	eFDD 4 QPSK	high	12	0.2	-	129
NB-IoT	eFDD 4 BPSK	low	1	0.2	-	125
NB-IoT	eFDD 4 BPSK	mid	1	0.2	-	127
NB-IoT	eFDD 4 BPSK	high	1	0.2	-	124
NB-IoT	eFDD 12 QPSK	low	12	0.2	-	128
NB-IoT	eFDD 12 QPSK	mid	12	0.2	-	128
NB-IoT	eFDD 12 QPSK	high	12	0.2	-	122
NB-IoT	eFDD 12 BPSK	low	1	0.2	-	121
NB-IoT	eFDD 12 BPSK	mid	1	0.2	-	123
NB-IoT	eFDD 12 BPSK	high	1	0.2	-	126
NB-IoT	eFDD 13 QPSK	low	12	0.2	-	125
NB-IoT	eFDD 13 QPSK	mid	12	0.2	-	127
NB-IoT	eFDD 13 QPSK	high	12	0.2	-	123
NB-IoT	eFDD 13 BPSK	low	1	0.2	-	116
NB-IoT	eFDD 13 BPSK	mid	1	0.2	-	128
NB-IoT	eFDD 13 BPSK	high	1	0.2	-	122
NB-IoT	eFDD 66 QPSK	low	12	0.2	-	126
NB-IoT	eFDD 66 QPSK	mid	12	0.2	-	125
NB-IoT	eFDD 66 QPSK	high	12	0.2	-	124
NB-IoT	eFDD 66 BPSK	low	1	0.2	-	125
NB-IoT	eFDD 66 BPSK	mid	1	0.2	-	129
NB-IoT	eFDD 66 BPSK	high	1	0.2	-	126
NB-IoT	eFDD 85 QPSK	low	12	0.2	-	126
NB-IoT	eFDD 85 QPSK	mid	12	0.2	-	125
NB-IoT	eFDD 85 QPSK	high	12	0.2	-	128
NB-IoT	eFDD 85 BPSK	low	1	0.2	-	125
NB-IoT	eFDD 85 BPSK	mid	1	0.2	-	124
NB-IoT	eFDD 85 BPSK	high	1	0.2	-	125

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

5.16.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Technology = NB-IoT, Radio Technology = eFDD 4 QPSK, Operating Frequency = high channel, ChBW = 0.2 MHz, Ressource Blocks = 12

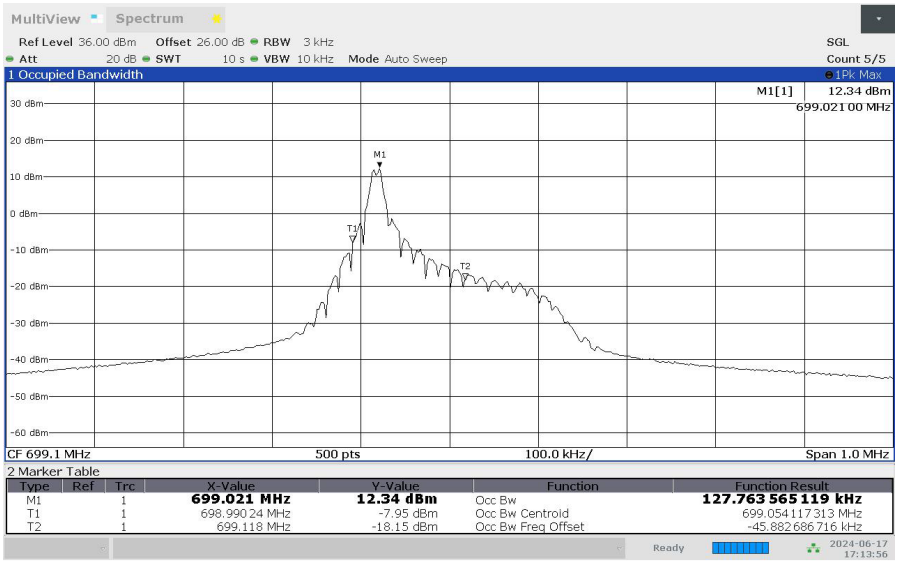
(S01_BC08)



04:23:16 PM 06/17/2024

Technology = NB-IoT, Radio Technology = eFDD 12 QPSK, Operating Frequency = low channel, ChBW = 0.2 MHz, Ressource Blocks = 12

(S01_BC08)

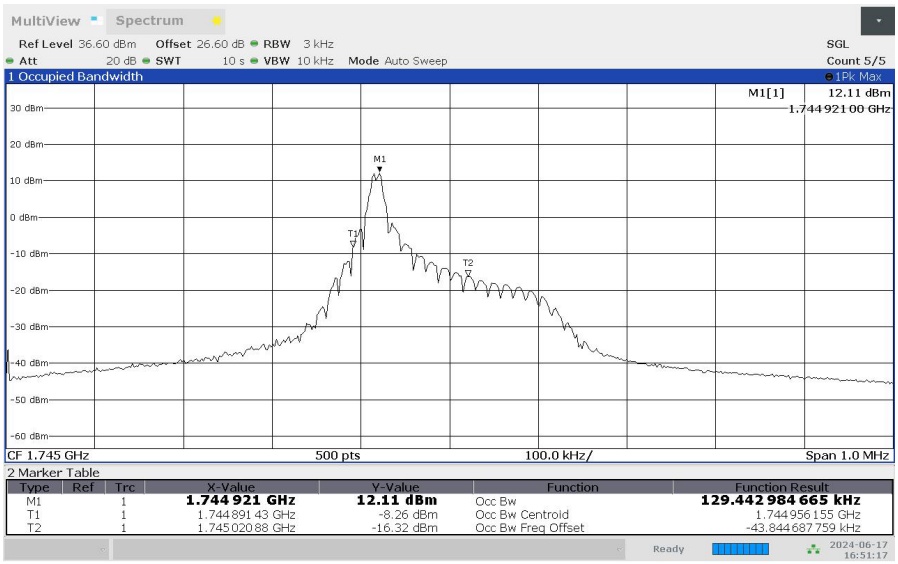


05:13:56 PM 06/17/2024

Technology = NB-IoT, Radio Technology = eFDD 13 BPSK, Operating Frequency = mid channel, ChBW = 0.2 MHz, Ressource Blocks = 1
(S01_BC08)

04:44:48 PM 06/17/2024

Technology = NB-IoT, Radio Technology = eFDD 66 BPSK, Operating Frequency = mid channel, ChBW = 0.2 MHz, Ressource Blocks = 1
(S01_BC08)



04:51:18 PM 06/17/2024

Technology = NB-IoT, Radio Technology = eFDD 85 QPSK, Operating Frequency = high channel, ChBW = 0.2 MHz, Ressource Blocks = 12
(S01_BC08)

04:55:39 PM 06/17/2024

5.16.5 TEST EQUIPMENT USED

- Radio Lab

5.17 RF OUTPUT POWER

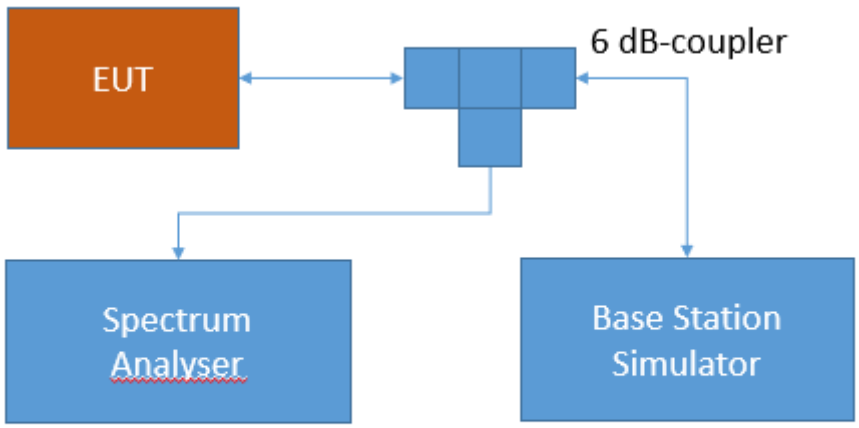
Standard **FCC PART 27 Subpart P**

The test was performed according to:
ANSI C63.26: 2015; 5.2.4.1, Wideband Signal: 5.2.4.4

5.17.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable RF Output power test case per § 2.1046. The limit and the requirements come from the applicable rule part for the operating band of the cellular device.

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



Test Setup FCC Part 22/24/27/90 Cellular;
RF Output power

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.

5.17.2 TEST REQUIREMENTS / LIMITS

FCC Part 27; Miscellaneous Wireless Communication Services

Subpart P – Regulations Governing Licensing and Use of 900 MHz Broadband Service in the 897.5–900.5 MHz and 936.5–939.5 MHz Bands

§ 27.1507 – Effective radiated power limits for 900 MHz broadband systems

Band 8:

(a) (4) ***Portable stations.*** Portable stations must not exceed 3 watts ERP.

5.17.3 TEST PROTOCOL

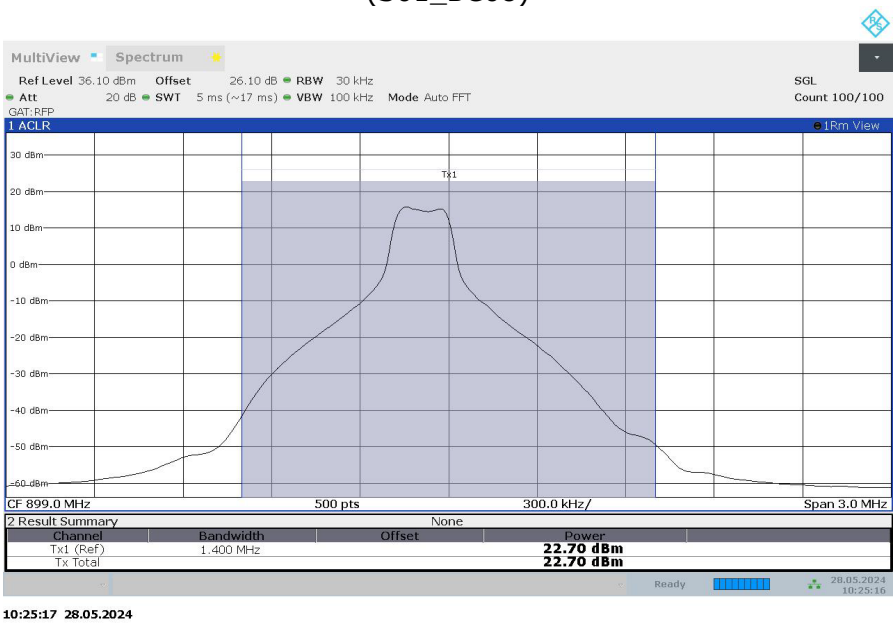
Ambient temperature: 20 - 28 °C
Relative humidity: 30 - 40 %

Radio Technology		Channel	Ressource Blocks	Band-width [MHz]	Peak Cond. Power (dBm)	Average Cond. Power (dBm)	RMS Cond. Power (dBm)	FCC Limit (W)	IC Limit (W)	Maximum Antenna Gain FCC (dBi)	Maximum Antenna Gain IC (dBi)
CAT-M1	eFDD 8 QPSK	low	1	1.4	-	-	22.68	3 (ERP)	-	12.09	-
CAT-M1	eFDD 8 QPSK	low	3	1.4	-	-	21.69	3 (ERP)	-	13.08	-
CAT-M1	eFDD 8 QPSK	low	6	1.4	-	-	20.62	3 (ERP)	-	14.15	-
CAT-M1	eFDD 8 QPSK	mid	1	1.4	-	-	22.70	3 (ERP)	-	12.07	-
CAT-M1	eFDD 8 QPSK	mid	3	1.4	-	-	21.62	3 (ERP)	-	13.15	-
CAT-M1	eFDD 8 QPSK	mid	6	1.4	-	-	20.66	3 (ERP)	-	14.11	-
CAT-M1	eFDD 8 QPSK	high	1	1.4	-	-	22.57	3 (ERP)	-	12.20	-
CAT-M1	eFDD 8 QPSK	high	3	1.4	-	-	21.59	3 (ERP)	-	13.18	-
CAT-M1	eFDD 8 QPSK	high	6	1.4	-	-	20.61	3 (ERP)	-	14.16	-
CAT-M1	eFDD 8 16QAM	low	1	1.4	-	-	21.75	3 (ERP)	-	13.02	-
CAT-M1	eFDD 8 16QAM	low	5	1.4	-	-	20.70	3 (ERP)	-	14.07	-
CAT-M1	eFDD 8 16QAM	mid	1	1.4	-	-	21.55	3 (ERP)	-	13.22	-
CAT-M1	eFDD 8 16QAM	mid	5	1.4	-	-	20.63	3 (ERP)	-	14.14	-
CAT-M1	eFDD 8 16QAM	high	1	1.4	-	-	21.79	3 (ERP)	-	12.98	-
CAT-M1	eFDD 8 16QAM	high	5	1.4	-	-	20.66	3 (ERP)	-	14.11	-
CAT-M1	eFDD 8 QPSK	mid	1	3	-	-	22.63	3 (ERP)	-	12.14	-
CAT-M1	eFDD 8 QPSK	mid	3	3	-	-	21.62	3 (ERP)	-	13.15	-
CAT-M1	eFDD 8 QPSK	mid	6	3	-	-	20.68	3 (ERP)	-	14.09	-
CAT-M1	eFDD 8 16QAM	mid	1	3	-	-	21.84	3 (ERP)	-	12.93	-
CAT-M1	eFDD 8 16QAM	mid	5	3	-	-	20.71	3 (ERP)	-	14.06	-

Remarks:
Please see next sub-clause for the measurement plot.
The max. antenna gain is regarding the output power not SAR / MPE.

5.17.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Technology = CAT-M1, Radio Technology = eFDD 8 QPSK, Operating Frequency = mid channel, ChBW = 1.4 MHz, Ressource Blocks = 1
(S01_BC08)



5.17.5 TEST EQUIPMENT USED

- Radio Lab

5.18 RF OUTPUT POWER

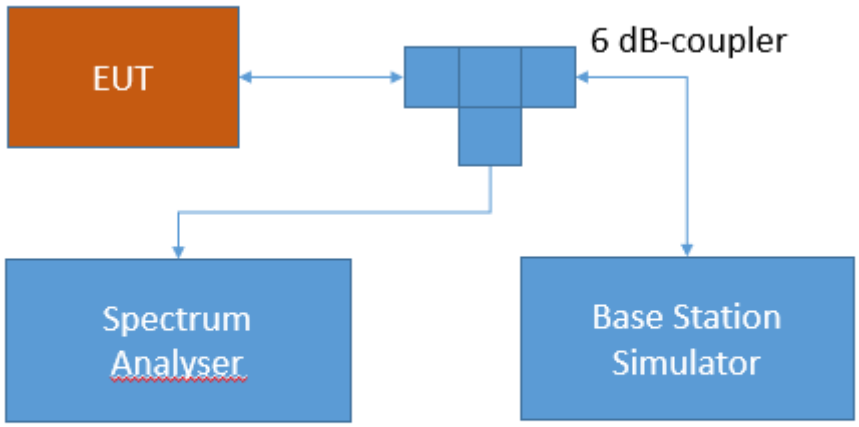
Standard **FCC PART 27 Subpart P**

The test was performed according to:
ANSI C63.26: 2015; 5.2.4.1, Wideband Signal: 5.2.4.4

5.18.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable RF Output power test case per § 2.1046. The limit and the requirements come from the applicable rule part for the operating band of the cellular device.

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



Test Setup FCC Part 22/24/27/90 Cellular;
RF Output power

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.

5.18.2 TEST REQUIREMENTS / LIMITS

FCC Part 27; Miscellaneous Wireless Communication Services

Subpart P – Regulations Governing Licensing and Use of 900 MHz Broadband Service in the 897.5–900.5 MHz and 936.5–939.5 MHz Bands

§ 27.1507 – Effective radiated power limits for 900 MHz broadband systems

Band 8:

(a) (4) ***Portable stations.*** Portable stations must not exceed 3 watts ERP.

5.18.3 TEST PROTOCOL

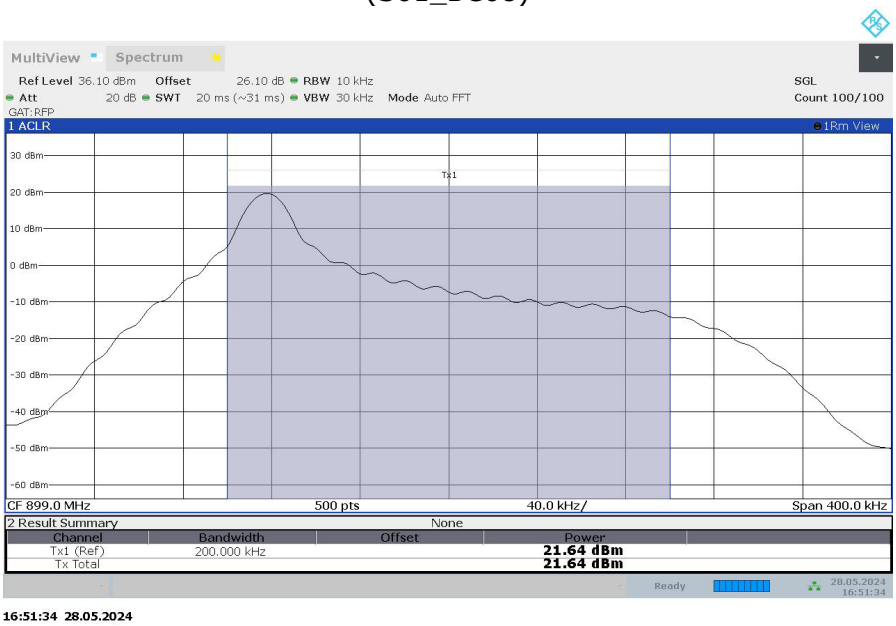
Ambient temperature: 20 - 28 °C
Relative humidity: 30 - 40 %

Radio Technology		Channel	Ressource Blocks	Band-width [MHz]	Peak Cond. Power (dBm)	Average Cond. Power (dBm)	RMS Cond. Power (dBm)	FCC Limit (W)	IC Limit (W)	Maximum Antenna Gain FCC (dBi)	Maximum Antenna Gain IC (dBi)
NB-IoT	eFDD 8 QPSK	low	1	0.2	-	-	21.47	3 (ERP)	-	13.30	-
NB-IoT	eFDD 8 QPSK	low	3	0.2	-	-	21.57	3 (ERP)	-	13.20	-
NB-IoT	eFDD 8 QPSK	low	6	0.2	-	-	21.56	3 (ERP)	-	13.21	-
NB-IoT	eFDD 8 QPSK	low	12	0.2	-	-	21.54	3 (ERP)	-	13.23	-
NB-IoT	eFDD 8 QPSK	mid	1	0.2	-	-	21.49	3 (ERP)	-	13.28	-
NB-IoT	eFDD 8 QPSK	mid	3	0.2	-	-	21.62	3 (ERP)	-	13.15	-
NB-IoT	eFDD 8 QPSK	mid	6	0.2	-	-	21.64	3 (ERP)	-	13.13	-
NB-IoT	eFDD 8 QPSK	mid	12	0.2	-	-	21.63	3 (ERP)	-	13.14	-
NB-IoT	eFDD 8 QPSK	high	1	0.2	-	-	21.56	3 (ERP)	-	13.21	-
NB-IoT	eFDD 8 QPSK	high	3	0.2	-	-	21.63	3 (ERP)	-	13.14	-
NB-IoT	eFDD 8 QPSK	high	6	0.2	-	-	21.63	3 (ERP)	-	13.14	-
NB-IoT	eFDD 8 QPSK	high	12	0.2	-	-	21.63	3 (ERP)	-	13.14	-
NB-IoT	eFDD 8 BPSK	low	1	0.2	-	-	21.45	3 (ERP)	-	13.32	-
NB-IoT	eFDD 8 BPSK	mid	1	0.2	-	-	21.48	3 (ERP)	-	13.29	-
NB-IoT	eFDD 8 BPSK	high	1	0.2	-	-	21.47	3 (ERP)	-	13.30	-

Remarks:
Please see next sub-clause for the measurement plot.
The max. antenna gain is regarding the output power not SAR / MPE.

5.18.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Technology = NB-IoT, Radio Technology = eFDD 8 QPSK, Operating Frequency = mid channel, ChBW = 0.2 MHz, Ressource Blocks = 6
(S01_BC08)



5.18.5 TEST EQUIPMENT USED

- Radio Lab

5.19 EMISSION AND OCCUPIED BANDWIDTH

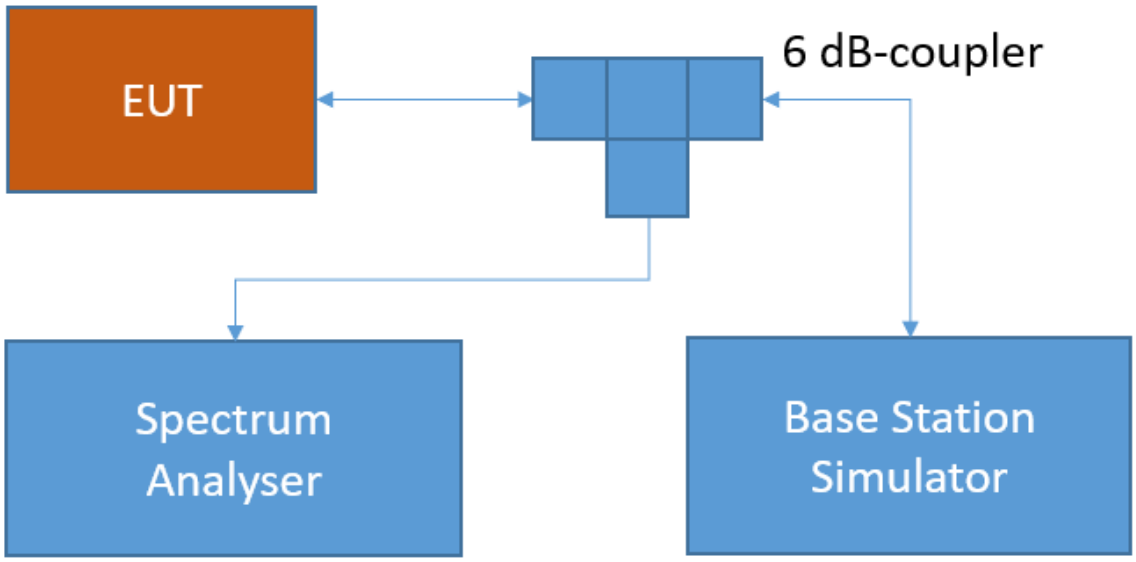
Standard **FCC PART 27 Subpart P**

The test was performed according to:
ANSI C63.26: 2015; 5.4.3 (relative meas. Procedure [26dB for GSM, EGDE, WCDMA, HSDPA, HSUPA]) 5.4.4 (Power bandwidth (99%))

5.19.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable conducted spurious emission test case per FCC §2.1049. The limit and the requirements come from the applicable rule part for the operating band of the cellular device.

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



Test Setup FCC / ISED Cellular;
Emission and occupied bandwidth

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.

5.19.2 TEST REQUIREMENTS / LIMITS

FCC Part 2.1049; Occupied Bandwidth:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

(h) Transmitters employing digital modulation techniques—when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the user.

(i) Transmitters designed for other types of modulation—when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal should be supplied.

§27.1506 – Frequencies

The 897.5-900.5 MHz and 936.5-939.5 MHz band segments are available for licensing with an authorized bandwidth up to 3 megahertz paired channels. The 897.5-900.5 MHz segment must only be used for uplink transmissions. The 936.5-939.5 MHz segments must only be used for downlink transmissions.

5.19.3 TEST PROTOCOL

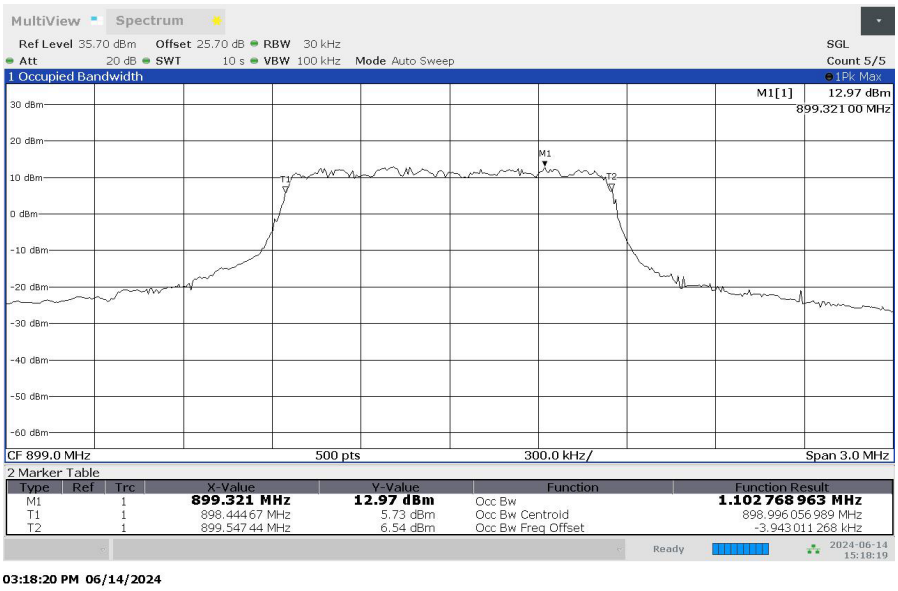
Ambient temperature: 20 - 28 °C
Relative humidity: 30 - 40 %

Radio Technology	Channel	Resource Blocks / Subcarrier	Bandwidth [MHz]	26 dB BW [kHz]	99 % BW [kHz]
CAT-M1 eFDD 8 QPSK	low	6	1.4	-	1102
CAT-M1 eFDD 8 QPSK	mid	6	1.4	-	1103
CAT-M1 eFDD 8 QPSK	high	6	1.4	-	1099
CAT-M1 eFDD 8 16QAM	low	5	1.4	-	929
CAT-M1 eFDD 8 16QAM	mid	5	1.4	-	926
CAT-M1 eFDD 8 16QAM	high	5	1.4	-	932

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

5.19.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Technology = CAT-M1, Radio Technology = eFDD 8 QPSK, Operating Frequency = mid channel, ChBW = 1.4 MHz, Ressource Blocks = 6
(S01_BC08)



5.19.5 TEST EQUIPMENT USED

- Radio Lab

5.20 EMISSION AND OCCUPIED BANDWIDTH

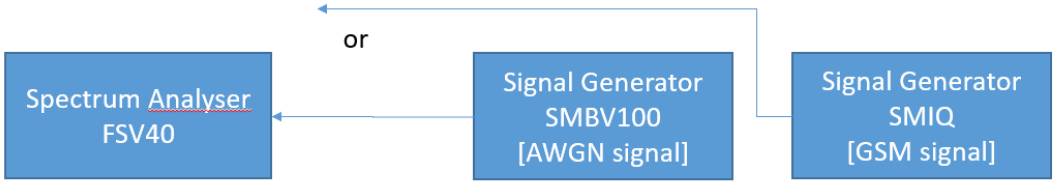
Standard **FCC PART 27 Subpart P**

The test was performed according to:
ANSI C63.26: 2015; 5.4.3 (relative meas. Procedure [26dB for GSM, EGDE, WCDMA, HSDPA, HSUPA]) 5.4.4 (Power bandwidth (99%))

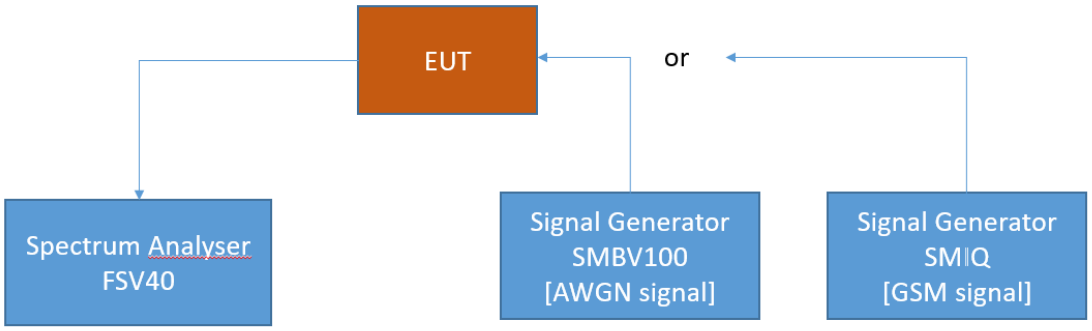
5.20.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable conducted spurious emission test case per FCC §2.1049. The limit and the requirements come from the applicable rule part for the operating band of the cellular device.

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



FCC Part 22/24/27/90; Industrial Signal Booster
Test Setup step 1: Measuring characteristics of test signals



FCC Part 22/24/27/90; Industrial Signal Booster
Test Setup step 2; Occupied Bandwidth/Input-versus-output spectrum

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.

5.20.2 TEST REQUIREMENTS / LIMITS

FCC Part 2.1049; Occupied Bandwidth:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

(h) Transmitters employing digital modulation techniques—when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the user.

(i) Transmitters designed for other types of modulation—when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal should be supplied.

§27.1506 – Frequencies

The 897.5-900.5 MHz and 936.5-939.5 MHz band segments are available for licensing with an authorized bandwidth up to 3 megahertz paired channels. The 897.5-900.5 MHz segment must only be used for uplink transmissions. The 936.5-939.5 MHz segments must only be used for downlink transmissions.

5.20.3 TEST PROTOCOL

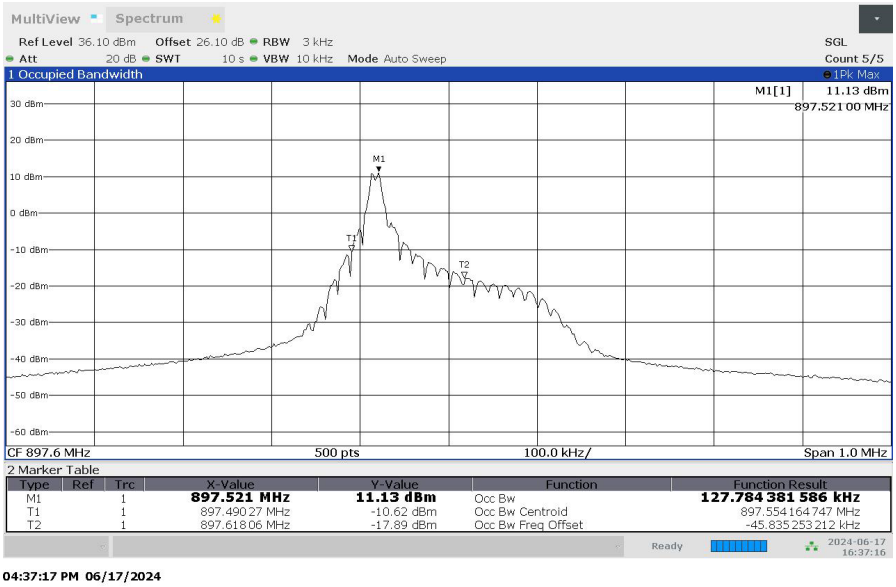
Ambient temperature: 20 - 28 °C
Relative humidity: 30 - 40 %

Radio Technology	Channel	Resource Blocks / Subcarrier	Bandwidth [MHz]	26 dB BW [kHz]	99 % BW [kHz]
NB-IoT eFDD 8 QPSK	low	12	0.2	-	122
NB-IoT eFDD 8 QPSK	mid	12	0.2	-	127
NB-IoT eFDD 8 QPSK	high	12	0.2	-	123
NB-IoT eFDD 8 BPSK	low	1	0.2	-	128
NB-IoT eFDD 8 BPSK	mid	1	0.2	-	128
NB-IoT eFDD 8 BPSK	high	1	0.2	-	124

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

5.20.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Technology = NB-IoT, Radio Technology = eFDD 8 BPSK, Operating Frequency = low channel, ChBW = 0.2 MHz, Ressource Blocks = 1
(S01_BC08)



5.20.5 TEST EQUIPMENT USED

- Radio Lab

5.21 RF OUTPUT POWER

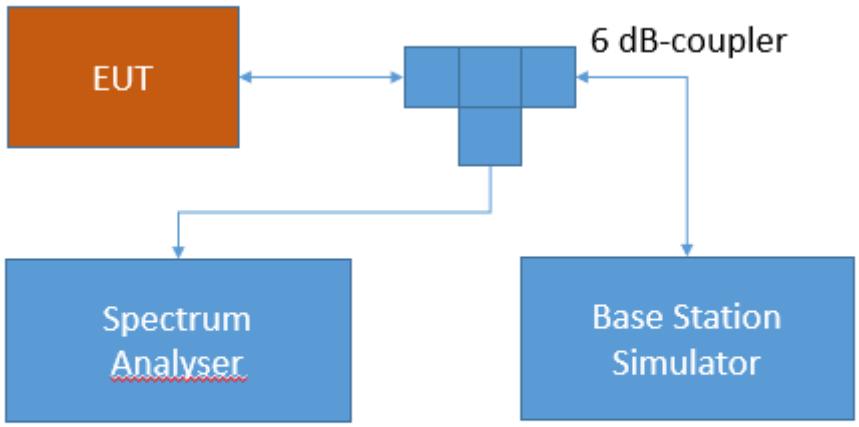
Standard **FCC PART 90 Subpart S**

The test was performed according to:
ANSI C63.26: 2015; 5.2.4.1, Wideband Signal: 5.2.4.4

5.21.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable RF Output power test case per § 2.1046 and RSS-GEN 6.12. The limit and the requirements come from the applicable rule part and ISED RSS-Standard for the operating band of the cellular device.

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



Test Setup FCC Part 22/24/27/90 Cellular;
RF Output power

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.

5.21.2 TEST REQUIREMENTS / LIMITS

Part 90; PRIVATE LAND MOBILE RADIO SERVICES

Subpart S—Regulations Governing Licensing and Use of Frequencies in the 806-824, 851-869, 896-901, and 935-940 MHz Bands

§90.635 Limitations on power and antenna height.

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

5.21.3 TEST PROTOCOL

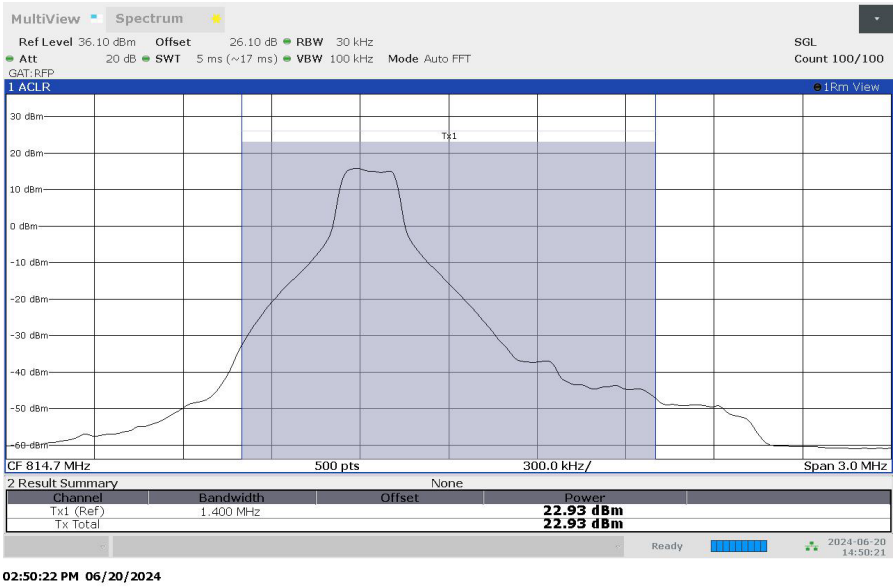
Ambient temperature: 20 - 28 °C
Relative humidity: 30 - 40 %

Radio Technology		Channel	Ressource Blocks	Band-width [MHz]	Peak Cond. Power [dBm]	Average Cond. Power [dBm]	RMS Cond. Power [dBm]	FCC ERP Limit [W]	IC ERP Limit [W]	Maximum Antenna Gain FCC [dBi]	Maximum Antenna Gain IC [dBi]
CAT-M1	eFDD 26 QPSK	low	1	1.4	-	-	22.93	100	-	27.07	-
CAT-M1	eFDD 26 QPSK	low	3	1.4	-	-	20.37	100	-	29.63	-
CAT-M1	eFDD 26 QPSK	low	6	1.4	-	-	19.42	100	-	30.58	-
CAT-M1	eFDD 26 QPSK	mid	1	1.4	-	-	21.60	100	-	28.40	-
CAT-M1	eFDD 26 QPSK	mid	3	1.4	-	-	20.34	100	-	29.66	-
CAT-M1	eFDD 26 QPSK	mid	6	1.4	-	-	19.57	100	-	30.43	-
CAT-M1	eFDD 26 QPSK	high	1	1.4	-	-	21.08	100	-	28.92	-
CAT-M1	eFDD 26 QPSK	high	3	1.4	-	-	20.27	100	-	29.73	-
CAT-M1	eFDD 26 QPSK	high	6	1.4	-	-	19.45	100	-	30.55	-
CAT-M1	eFDD 26 16QAM	low	1	1.4	-	-	20.21	100	-	29.79	-
CAT-M1	eFDD 26 16QAM	low	5	1.4	-	-	19.47	100	-	30.53	-
CAT-M1	eFDD 26 16QAM	mid	1	1.4	-	-	20.11	100	-	29.89	-
CAT-M1	eFDD 26 16QAM	mid	5	1.4	-	-	19.42	100	-	30.58	-
CAT-M1	eFDD 26 16QAM	high	1	1.4	-	-	20.28	100	-	29.72	-
CAT-M1	eFDD 26 16QAM	high	5	1.4	-	-	19.42	100	-	30.58	-
CAT-M1	eFDD 26 QPSK	low	1	5	-	-	21.04	100	-	28.96	-
CAT-M1	eFDD 26 QPSK	low	3	5	-	-	20.20	100	-	29.80	-
CAT-M1	eFDD 26 QPSK	low	6	5	-	-	20.15	100	-	29.85	-
CAT-M1	eFDD 26 QPSK	mid	1	5	-	-	20.96	100	-	29.04	-
CAT-M1	eFDD 26 QPSK	mid	3	5	-	-	20.28	100	-	29.72	-
CAT-M1	eFDD 26 QPSK	mid	6	5	-	-	20.12	100	-	29.88	-
CAT-M1	eFDD 26 QPSK	high	1	5	-	-	20.87	100	-	29.13	-
CAT-M1	eFDD 26 QPSK	high	3	5	-	-	20.22	100	-	29.78	-
CAT-M1	eFDD 26 QPSK	high	6	5	-	-	20.01	100	-	29.99	-
CAT-M1	eFDD 26 16QAM	low	1	5	-	-	22.55	100	-	27.45	-
CAT-M1	eFDD 26 16QAM	low	5	5	-	-	19.30	100	-	30.70	-
CAT-M1	eFDD 26 16QAM	mid	1	5	-	-	20.94	100	-	29.06	-
CAT-M1	eFDD 26 16QAM	mid	5	5	-	-	19.30	100	-	30.70	-
CAT-M1	eFDD 26 16QAM	high	1	5	-	-	20.97	100	-	29.03	-
CAT-M1	eFDD 26 16QAM	high	5	5	-	-	19.28	100	-	30.72	-
CAT-M1	eFDD 26 QPSK	mid	1	10	-	-	21.16	100	-	28.84	-
CAT-M1	eFDD 26 QPSK	mid	3	10	-	-	21.06	100	-	28.94	-
CAT-M1	eFDD 26 QPSK	mid	6	10	-	-	20.11	100	-	29.89	-
CAT-M1	eFDD 26 16QAM	mid	1	10	-	-	21.23	100	-	28.77	-
CAT-M1	eFDD 26 16QAM	mid	5	10	-	-	20.11	100	-	29.89	-

Remarks:
Please see next sub-clause for the measurement plot.
The max. antenna gain is regarding the output power not SAR / MPE.

5.21.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Technology = CAT-M1, Radio Technology = eFDD 26 QPSK, Operating Frequency = low channel, ChBW = 1.4 MHz, Ressource Blocks = 1
(S01_BC08)



5.21.5 TEST EQUIPMENT USED

- Radio Lab

5.22 EMISSION AND OCCUPIED BANDWIDTH

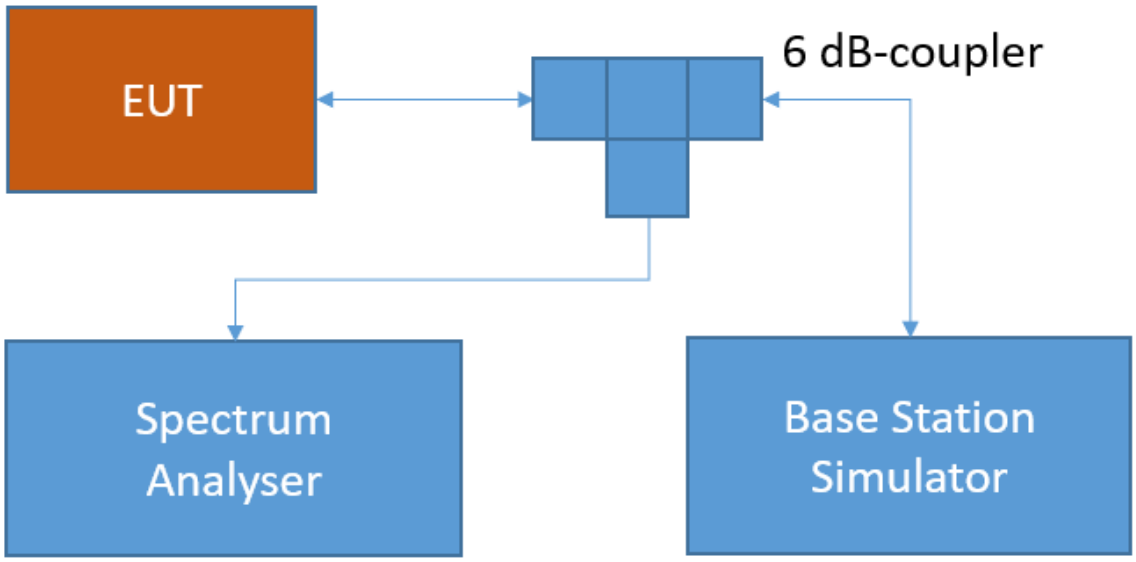
Standard **FCC PART 90 Subpart S**

The test was performed according to:
ANSI C63.26: 2015; 5.4.3 (relative meas. Procedure [26dB for GSM, EGDE, WCDMA, HSDPA, HSUPA]) 5.4.4 (Power bandwidth (99%))

5.22.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable conducted spurious emission test case per FCC §2.1049. The limit and the requirements come from the applicable rule part for the operating band of the cellular device.

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



Test Setup FCC / ISED Cellular;
Emission and occupied bandwidth

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.

5.22.2 TEST REQUIREMENTS / LIMITS

FCC Part 2.1049; Occupied Bandwidth:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

(h) Transmitters employing digital modulation techniques—when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the user.

(i) Transmitters designed for other types of modulation—when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal should be supplied.

5.22.3 TEST PROTOCOL

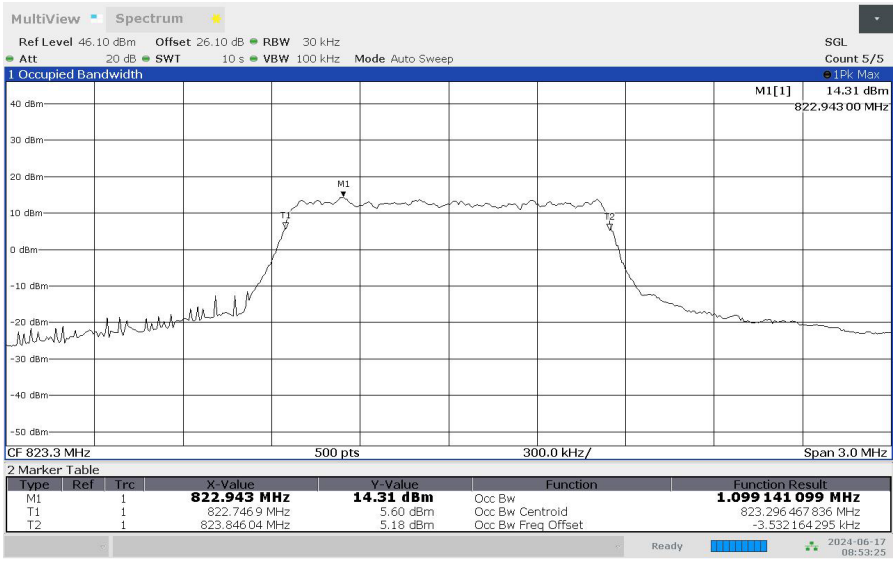
Ambient temperature: 20 - 28 °C
Relative humidity: 30 - 40 %

Technology	Radio Technology	Channel	Ressource Blocks	Bandwidth [MHz]	26 dB BW [kHz]	99 % BW [kHz]
CAT-M1	eFDD 26 QPSK	low	6	1.4	-	1097
CAT-M1	eFDD 26 QPSK	mid	6	1.4	-	1097
CAT-M1	eFDD 26 QPSK	high	6	1.4	-	1099
CAT-M1	eFDD 26 16QAM	low	5	1.4	-	924
CAT-M1	eFDD 26 16QAM	mid	5	1.4	-	933
CAT-M1	eFDD 26 16QAM	high	5	1.4	-	932

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

5.22.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Technology = CAT-M1, Radio Technology = eFDD 26 QPSK, Operating Frequency = high channel, ChBW = 1.4 MHz, Ressource Blocks = 6
(S01_BC08)



5.22.5 TEST EQUIPMENT USED

- Radio Lab

6 TEST EQUIPMENT

6.1 TEST EQUIPMENT HARDWARE

1 Radio Lab
Conducted Radio Test Lab

Ref.No.	Device Name	Description	Manufacturer	Serial Number	Last Calibration	Calibration Due
1.1	1575	Broadband Resistive Power Divider DC to 40 GHz	API Weinschel, Inc.	4070	N/A	N/A
1.2	FSV30	Signal Analyzer 10 Hz - 30 GHz	Rohde & Schwarz	103005	2023-08	2025-08
1.3	FSW43	Signal Analyzer 2 Hz – 43.5 GHz	Rohde & Schwarz	103779	2023-04	2025-04
1.4	Fluke 177	Digital Multimeter 03 (Multimeter)	Fluke Europe B.V.	86670383	2023-08	2025-08
1.5	CMW500	Callbox OIL-RE, SUA-160 MHz	Rohde & Schwarz GmbH & Co. KG	168927-cv	2023-08	2026-08
1.6	A8455-4	4 Way Power Divider (SMA)		-	N/A	N/A
1.7	Opus10 THI (8152.00)	T/H Logger 03	Lufft Mess- und Regeltechnik GmbH	7482	2023-12	2025-12

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

6.2 TEST EQUIPMENT SOFTWARE

FSW43:	
Software	Version
Instrument Firmware	5.21
FSV30:	
Software	Version
Instrument Firmware	3.70
CMW500	
Software	Version
CMW Base	V4.0.140

7 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.

7.1 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		10.5	0.2	10.3
10		10.5	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	10.5
20		10.9	0.4	10.5
22		11.1	0.5	10.6
24		11.1	0.5	10.6
26		11.2	0.5	10.7
28		11.2	0.5	10.7
30		11.3	0.5	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.

7.2 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	20.50	-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
0.5	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

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

(d_{Limit} = 3 m)

Frequency	AF R&S HL562	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)
MHz	dB (1/m)	dB	dB	dB	dB	dB	dB	m	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	0.56	0.14	0.47	0.08	0.0	3	3
150	7.9	1.6	0.73	0.20	0.59	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	0.54	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	-10.5	10	3
50	6.0	-9.6	0.39	0.09	0.32	0.08	-10.5	10	3
100	9.7	-9.2	0.56	0.14	0.47	0.08	-10.5	10	3
150	7.9	-8.8	0.73	0.20	0.59	0.12	-10.5	10	3
200	7.6	-8.6	0.84	0.21	0.70	0.11	-10.5	10	3
250	9.5	-8.3	0.98	0.24	0.80	0.13	-10.5	10	3
300	11.0	-8.1	1.04	0.26	0.89	0.15	-10.5	10	3
350	12.4	-7.9	1.18	0.31	0.96	0.13	-10.5	10	3
400	13.6	-7.6	1.28	0.35	1.03	0.19	-10.5	10	3
450	14.7	-7.4	1.39	0.38	1.11	0.22	-10.5	10	3
500	15.6	-7.2	1.44	0.39	1.20	0.19	-10.5	10	3
550	16.3	-7.0	1.55	0.46	1.24	0.23	-10.5	10	3
600	17.2	-6.9	1.59	0.43	1.29	0.23	-10.5	10	3
650	18.1	-6.9	1.67	0.34	1.35	0.22	-10.5	10	3
700	18.5	-6.8	1.67	0.42	1.41	0.15	-10.5	10	3
750	19.1	-6.3	1.87	0.54	1.46	0.25	-10.5	10	3
800	19.6	-6.3	1.90	0.46	1.51	0.25	-10.5	10	3
850	20.1	-6.0	1.99	0.60	1.56	0.27	-10.5	10	3
900	20.8	-5.8	2.14	0.60	1.63	0.29	-10.5	10	3
950	21.1	-5.6	2.22	0.60	1.66	0.33	-10.5	10	3
1000	21.6	-5.6	2.23	0.61	1.71	0.30	-10.5	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.

7.4 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	0.53	-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	0.53	-27.58	1.33	
4000	33.1	-23.3	0.56	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	0.58	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	0.56	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	0.54	-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	0.53	-63.03	3.91	1.40	1.77
15000	40.9	-54.1	0.98	0.54	-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	0.53	-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.

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

Frequency	AF EMCO 3160-09	Corr.	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)
MHz	dB (1/m)	dB	dB	dB	dB	dB	dB
18000	40.2	-23.5	0.72	-35.85	6.20	2.81	2.65
18500	40.2	-23.2	0.69	-35.71	6.46	2.76	2.59
19000	40.2	-22.0	0.76	-35.44	6.69	3.15	2.79
19500	40.3	-21.3	0.74	-35.07	7.04	3.11	2.91
20000	40.3	-20.3	0.72	-34.49	7.30	3.07	3.05
20500	40.3	-19.9	0.78	-34.46	7.48	3.12	3.15
21000	40.3	-19.1	0.87	-34.07	7.61	3.20	3.33
21500	40.3	-19.1	0.90	-33.96	7.47	3.28	3.19
22000	40.3	-18.7	0.89	-33.57	7.34	3.35	3.28
22500	40.4	-19.0	0.87	-33.66	7.06	3.75	2.94
23000	40.4	-19.5	0.88	-33.75	6.92	3.77	2.70
23500	40.4	-19.3	0.90	-33.35	6.99	3.52	2.66
24000	40.4	-19.8	0.88	-33.99	6.88	3.88	2.58
24500	40.4	-19.5	0.91	-33.89	7.01	3.93	2.51
25000	40.4	-19.3	0.88	-33.00	6.72	3.96	2.14
25500	40.5	-20.4	0.89	-34.07	6.90	3.66	2.22
26000	40.5	-21.3	0.86	-35.11	7.02	3.69	2.28
26500	40.5	-21.1	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.

7.6 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				-9.5	3	1.0
27.0	43.4	-11.2	4.4				-9.5	3	1.0
28.0	43.4	-11.1	4.5				-9.5	3	1.0
29.0	43.5	-11.0	4.6				-9.5	3	1.0
30.0	43.5	-10.9	4.7				-9.5	3	1.0
31.0	43.5	-10.8	4.7				-9.5	3	1.0
32.0	43.5	-10.7	4.8				-9.5	3	1.0
33.0	43.6	-10.7	4.9				-9.5	3	1.0
34.0	43.6	-10.6	5.0				-9.5	3	1.0
35.0	43.6	-10.5	5.1				-9.5	3	1.0
36.0	43.6	-10.4	5.1				-9.5	3	1.0
37.0	43.7	-10.3	5.2				-9.5	3	1.0
38.0	43.7	-10.2	5.3				-9.5	3	1.0
39.0	43.7	-10.2	5.4				-9.5	3	1.0
40.0	43.8	-10.1	5.5				-9.5	3	1.0

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.

8 MEASUREMENT UNCERTAINTIES

Test Case(s)	Parameter	Uncertainty
- Field strength of spurious radiation	Field Strength	± 5.5 dB
- Emission and Occupied Bandwidth	Power Frequency	± 2.9 dB ± 11.2 kHz
- RF Output Power - Peak to Average Ratio	Power	± 2.2 dB
- Band Edge Compliance - Spurious Emissions at Antenna Terminal	Power Frequency	± 2.2 dB ± 11.2 kHz
- Frequency Stability	Frequency	± 25 Hz

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- Field strength of spurious radiation	Field Strength	± 5.5 dB
- Emission and Occupied Bandwidth	Power Frequency	± 2.9 dB ± 11.2 kHz
- RF Output Power - Peak to Average Ratio	Power	± 2.2 dB
- Band Edge Compliance - Spurious Emissions at Antenna Terminal	Power Frequency	± 2.2 dB ± 11.2 kHz
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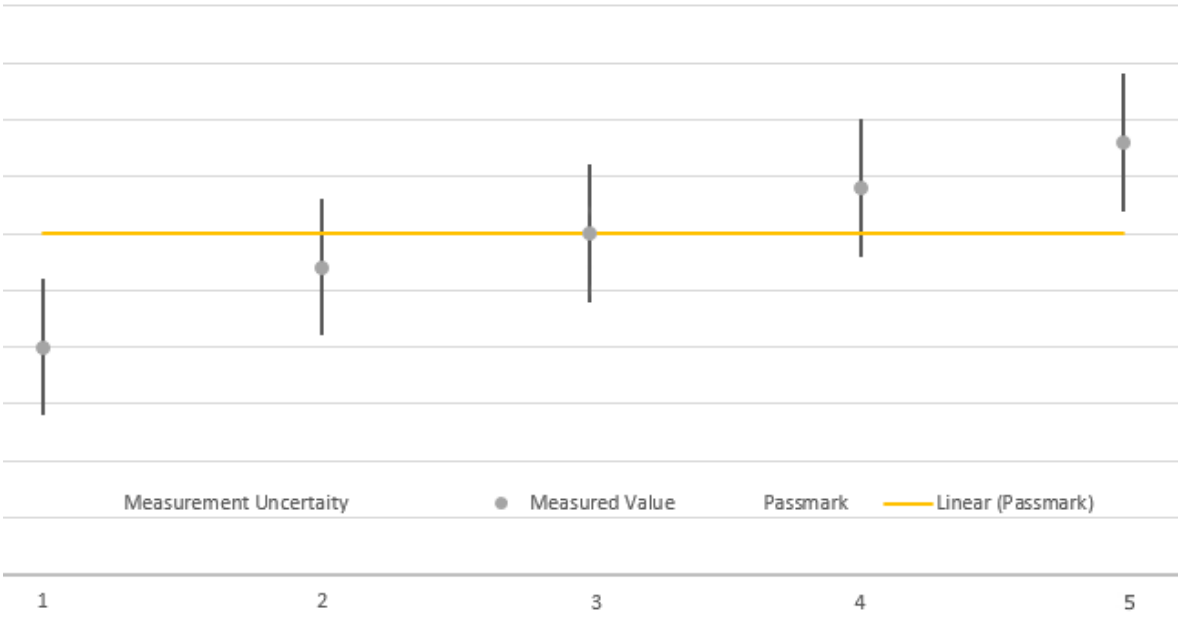
- Frequency Stability	Frequency	± 25 Hz

The measurement uncertainties for all parameters are calculated with an expansion factor (coverage factor) k = 1.96. This means, that the true value is in the corresponding interval with a probability of 95 %.



The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	on pass mark	within pass mark	Passed
4	above pass mark	within pass mark	Failed
5	above pass mark	above pass mark	Failed

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

9 PHOTO REPORT

Please see separate photo report.

**********END OF TEST REPORT**********