

IC: 4008C-TSSRE4UE

5.2 Field strength of the fundamental

For test instruments and accessories used see section 6 Part CPR 2.

5.2.1 Description of the test location

Test location: OATS1

Test distance: 3 metres

5.2.2 Photo documentation of the test set-up



5.2.1 Applicable standard

According to RSS 210, A1.1.2:

The field strength of emissions from intentional radiators shall not exceed the effective field strength limits.

5.2.2 Description of Measurement

The radiated field strength of the fundamental wave from the EUT is measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver with 120 kHz/6 dB bandwidth, quasi-peak detection and appropriate broadband linear polarized antenna as described under item 4.4. The set up of the EUT will be in accordance to ANSI C63.10.

The resolution bandwidth during the measurement is as follows:

30 MHz – 1000 MHz: RBW: 120 kHz

The resolution bandwidth during the measurement is as follows:

30 MHz – 1000 MHz: RBW: 120 kHz

Example:

Frequency (MHz)	Level (dB μ V)	+	Factor (dB)	=	Level dB(μ V/m)	-	Limit dB(μ V/m)	=	Delta (dB)
170.5	5	+	20	=	25	-	30	=	-5

IC: 4008C-TSSRE4UE

5.3 Spurious emissions (magnetic field) 9 kHz – 30 MHz

For test instruments and accessories used see section 6 Part SER 1.

5.3.1 Description of the test location

Test location: OATS1

Test distance: 3 metres

5.3.2 Photo documentation of the test set-up



5.3.3 Applicable standard

Limit according to RSS 210:

The emissions from intentional radiators shall not exceed the effective field strength limits outside of this band.

5.3.4 Description of Measurement

The spurious emissions from the EUT will be measured on an open area test site in the frequency range of 9 kHz to 30 MHz using a tuned receiver and a shielded loop antenna. The antenna was positioned 30 metres horizontally from the EUT. Measurements have been made in all three orthogonal axes and the shielded loop antenna was rotated to locate the maximum of the emissions. The final measurement will be performed with an EMI receiver set to quasi-peak detector except for the frequency bands 9 kHz to 90 kHz and 110 to 490 kHz where an average detector will be used according to RSS 210, Table 3.

IC: 4008C-TSSRE4UE

5.4 Field strength of Unwanted Emissions

For test instruments and accessories used see section 6 Part **SER 2**, **SER 3**.

5.4.1 Description of the test location

Test location: OATS 1
Test location: Anechoic Chamber A2
Test distance: 3 metres

5.4.2 Photo documentation of the test set-up



IC: 4008C-TSSRE4UE

5.5 Pulsed operation

For test instruments and accessories used see section 6 Part DC.

5.5.1 Description of the test location

Test location: Shielded room S4

5.5.2 Photo documentation of the test set-up



5.5.3 Applicable standard

According to RSS-Gen:

When the field strength (or envelope power) is not constant or when it is in pulses, and average detector is specified to be used, the value of field strength or power shall be determined by averaging over one complete pulse train, including blanking intervals within the pulse train, as long as the pulse train not exceed 0.1 s. In case where the pulse train exceeds 0.1 s, the average value shall be determined during 0.1 s interval during which the field strength is at its max value.

5.5.4 Test result

The Duty cycle factor (dB) is calculated applying the following formula:

$$KE = 20 \log \left(\frac{t_{iB}}{100} \right)$$

KE: pulse operation correction factor (dB)
t_{iB} pulse duration for one pulse (ms)

ASK: Maximum transmitting duration in every 100ms period:

$$KE = 20 \log \left(\frac{15.2}{100} \right) = -16.36 \text{ dB}$$

FSK: Maximum transmitting duration in every 100ms period:

$$KE = 20 \log \left(\frac{10.0}{100} \right) = -20.00 \text{ dB}$$

Remarks: The pulse train (*T_w*) exceeds 100 ms, therefore the duty cycle have been calculated by averaging
the sum of the pulse widths over the 100 ms width with the highest average value.
For detailed results, please see the test protocol below.

IC: 4008C-TSSRE4UE

5.6 Bandwidth of momentary signals

For test instruments and accessories used see section 6 Part MB.

5.6.1 Description of the test location

Test location: Shielded room S4

5.6.2 Photo documentation of the test set-up



5.6.3 Test result

G3.8 - ASK mode:

Fundamental frequency (MHz)	99% bandwidth f_1 (MHz)	99% bandwidth f_2 (MHz)	Measured bandwidth (MHz)	Limit (MHz)
433.92	433.865	433.982	0.117	1.0848

G3.8 - FSK mode:

Fundamental frequency (MHz)	99% bandwidth f_1 (MHz)	99% bandwidth f_2 (MHz)	Measured bandwidth (MHz)	Limit (MHz)
433.92	433.860	433.988	0.128	1.0848

Limit according to RSS 210, Annex 1, section A1.3:

The 99% bandwidth shall be no wider than 0.25% of the center frequency for devices operating between 70 MHz - 900 MHz.

The requirements are **FULFILLED**.

Remarks: For detailed results, please see the test protocol below.

The Rhode & Schwarz analyzer which we used for this measurement calculates automatically
the 99 % emission bandwidth.

IC: 4008C-TSSRE4UE

5.7 On / Off Period

For test instruments and accessories used see section 6 Part MB.

5.7.1 Description of the test location

Test location: Shielded room S4

5.7.2 Photo documentation of the test set-up



5.7.3 Applicable standard

According to RSS 210, Annex 1, section A1.1.3:

5.7.4 Description of Measurement

The duration of transmission is measured with the spectrum analyzer. The sweep points were set to maximum for higher the time resolution. The signal is modulated; the marker of the analyzer is set to maximum amplitude at normal temperature and zero span. The analyser was set to single sweep and triggered on the button, the marker was set to the edges in order to measure the duration time and then recorded.

IC: 4008C-TSSRE4UE

5.8 Signal deactivation

For test instruments and accessories used see section 6 Part MB.

5.8.1 Description of the test location

Test location: AREA 4

5.8.2 Photo documentation of the test set-up



5.8.3 Test result

The manufacturer declares following transmitting intervals:

ASK mode:

Duration of transmission (ms)
15.2

FSK mode:

Duration of transmission (ms)
10.0