

## CST Technical Specification

# Specification for Short Range Devices (SRD)

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This technical specification is issued by The Communications, Space and Technology Commission in the Kingdom of Saudi Arabia in accordance with the provisions of the Communications and Information Technology Act issued by Royal Decree No. (M/106) dated 02/11/1443 AH and its bylaw, and the Commission's regulation.

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### Document History Table

Version	Issue Date	Description
Issue 1	March 2006	
Issue 2	January 2010	
Issue 3	December 2018	
Issue 4	July 2021	Merge of RI048, RI050, RI054, RI055, RI080, RI083, and RI084 technical specifications.
Issue 5	October 2023	

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## 1- Scope

- 1-1 This specification applies to short-range devices and ancillary equipment.
- 1-2 Short Range Devices or SRD are devices operating at low power and offering a communication technology for short distances. SRD applications covered in this technical specification include, but not limited to, medical devices, inductive, RFID, animal tracking, animal implantable devices and tank level probing radars (TLPR).

## 2- Enforcement

- 2-1 This specification shall enter into force on from issue date.
- 2-2 Any previous version of this technical specification is withdrawn.

### 3- General Requirements

- 3-1 All equipment must comply with the requirement of CST specification GEN001, be safe and must not adversely affect other electrical equipment.
- 3-2 All telecommunications and radio terminal equipment must comply with the relevant technical specifications established by CST. In addition, such equipment may be subject to regulations for Declaration of Conformity or registration. Please visit CST website for details.
- 3-3 If more than one interface type is offered by a piece of equipment, each interface must meet the applicable technical specifications.
- 3-4 Further information on the characteristics and presentation of network interfaces can be obtained by coordinating with the mobile network operators.
- 3-5 It is mandatory that test reports are obtained from a laboratory that has been accredited by a body that is a member of the ILAC Mutual Recognition Arrangement.

## 4- Limits and conditions

Testing should be carried out to ensure compliance with the listed specifications.

Frequency band	Max Output Power or Magnetic Field	Usage	Standard	Comments
9 – 315 kHz	30 dB $\mu$ A/m @10m	Medical devices	EN 302 195 EN 301 489-31	
9.0 – 59.75 kHz	72 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	In case of external antennas only loop coil antennas may be employed.
59.75 – 60.25 kHz	42 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	In case of external antennas only loop coil antennas may be employed.
60.25 – 70.0 kHz	69 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	In case of external antennas only loop coil antennas may be employed.
70 – 119 kHz	42 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	In case of external antennas only loop coil antennas may be employed.
119 – 135 kHz	66 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	In case of external antennas only loop coil

				antennas may be employed.
135 – 140 kHz	42 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	In case of external antennas only loop coil antennas may be employed.
140 – 148.5 kHz	37.7 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	In case of external antennas only loop coil antennas may be employed.
148.5 – 5000 kHz	-15 dB $\mu$ A/m @ 10m	Inductive	EN 302 536 EN 301 489-3	In case of external antennas only loop coil antennas may be employed.  The maximum magnetic field strength is specified in a bandwidth of 10 kHz. The maximum allowed total magnetic field strength is -5 dB $\mu$ A/m at 10 m for systems operating at bandwidths larger than 10

				kHz whilst keeping the density limit (-15 dB $\mu$ A/m in a bandwidth of 10 kHz).
315 – 600 kHz	-5 dB $\mu$ A/m @10m	Animal implantables	EN 302 536 EN 301 489-27	
6765 – 6795 kHz	42 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	
7400 – 8800 kHz	9 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	
10.2 – 11 MHz	9 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	
12.5 – 20 MHz	-7 dB $\mu$ A/m @10m	Animal implantables	EN 300 330 EN 301 489-31	
13.553 – 13.567 MHz	42 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	
13.553 – 13.567 MHz	60 dB $\mu$ A/m @10m	RFID	EN 302 291 EN 301 489-3	Power levels above 500 mW are restricted to use inside the boundaries of a building. In this case the duty cycle of all transmissions shall be $\leq$ 15 % in any 200 ms period (30 ms on /170 ms off).
3155 – 3400 kHz	13.5 dB $\mu$ A/m @ 10m	Inductive	EN 300 330 EN 301 489-3	In case of external antennas only



				loop coil antennas may be employed.
6765 – 6795 kHz	42 dB $\mu$ A/m @10m	Non specific	EN 300 330 EN 301 489-3	
26.957 – 27.283 MHz	42 dB $\mu$ A/m @10m	Non specific	EN 300 330 EN 301 489-3	
26.957 – 27.283 MHz	10 mW ERP	Non specific	EN 300 220 EN 301 489-3	
30 – 37.5 MHz	1mW ERP	Medical devices	EN 302 510 EN 301 489-27	
40.660 – 40.700 MHz	10 mW ERP	Non specific	EN 300 220 EN 301 489-3	
401 – 402 MHz	25 $\mu$ W ERP	Medical devices	EN 302 537 EN 301 489-27	
402 – 405 MHz	25 $\mu$ W ERP	Medical devices	EN 302 839 EN 301 489-27	
405 – 406 MHz	25 $\mu$ W ERP	Medical devices	EN 302 537 EN 301 489-27	
433.05 – 434.79 MHz	1 mW ERP	Non-specific	EN 300 220 EN 301 489-3	Power density limited to -13 dBm/10 kHz for wideband modulation with a bandwidth greater than 250 kHz
433.05 – 434.79 MHz	10 mW ERP	Non-specific	EN 300 220 EN 301 489-3	≤ 10% duty cycle
433.04 – 434.79 MHz	10 mW ERP	Non-specific	EN 300 220 EN 301 489-3	maximum occupied bandwidth ≤ 25 kHz
863.000 – 870.000 MHz	25 mW ERP	Non-specific	EN 300 220 EN 301 489-3	≤ 0.1% duty cycle
865 – 865.6 MHz	100mW ERP	RFID	EN 302 208	

			EN 301 489-3	
865.6 – 867.6 MHz	2W ERP	RFID	EN 302 208 EN 301 489-3	
867.6 – 868 MHz	500mW ERP	RFID	EN 302 208 EN 301 489-3	
868.0 - 868.6 MHz	25 mW ERP	Non specific	EN 300 220 EN 301 489-3	
868.700 - 869.200 MHz	25 mW ERP	Non specific	EN 300 220 EN 301 489-3	
865 – 868 MHz	100 mW	Animal tracking	EN 300 220 EN 301 489-3	
869.400 - 869.650 MHz	25 mW ERP	Non specific	EN 300 220 EN 301 489-3	
869.700 - 870.000 MHz	25 mW ERP	Non specific	EN 300 220 EN 301 489-3	
870-876 MHz	25 mW ERP	Non specific	EN 300 220 EN 301 489-3	
915-921 MHz	25 mW ERP	Non specific	EN 300 220 EN 301 489-3	
2400 - 2483.5 MHz	10 mW EIRP	Non specific	EN 300 440 EN 301 489-3	
2400 - 2483.5 MHz	25 mW EIRP	Movement detection	EN 300 440 EN 301 489-3	
2446 – 2454 MHz	500mW EIRP	RFID	EN 300 440 EN 301 489-3	
2446 – 2454 MHz	4W EIRP	RFID	EN 300 440 EN 301 489-3	Power levels above 500 mW are restricted to use inside the boundaries of a building. In this case the duty cycle of all transmissions shall be ≤15 %

				in any 200 ms period (30 ms on /170 ms off).
5725 – 5875 MHz	25 mW EIRP	Non specific	EN 300 440 EN 301 489-3	
8.5 – 10.6 GHz	-41.3 dBm/MHz	TLPR	EN 302 372 EN 301 489-3	
10.5 – 10.6 GHz	25 mW	Movement detection	EN 300 440 EN 301 489-3	
13.4 – 14.0 GHz	25 mW	Movement detection	EN 300 440 EN 301 489-3	
24.00 – 25 GHz	100 mW EIRP	Non specific	EN 300 440 EN 301 489-3	
24.05 – 27.0 GHz	-41.3 dBm/MHz	TLPR	EN 302 372 EN 301 489-3	The power limit is given as the radiated emission outside an enclosed tank structure.
57 – 64 GHz	-41.3 dBm/MHz	TLPR	EN 302 372 EN 301 489-3	The power limit is given as the radiated emission outside an enclosed tank structure.
57 – 64 GHz	100 mW	non-specific	EN 305 550-2 EN 301 489-3	
75 – 85 GHz	-41.3 dBm/MHz	TLPR	EN 302 372 EN 301 489-3	The power limit is given as the radiated

				emission outside an enclosed tank structure.
122 - 123 GHz	100 mW EIRP	Non specific	EN 300 440 EN 301 489-3	

## 5-Licensing Requirements

No licensing requirements apply.

## 6-Additional Requirements

- All equipment must comply with the Wireless Local Area Networks Regulation if applicable. Please visit [www.CST.gov.sa](http://www.CST.gov.sa) for details.
- Animal tracking equipment are subject for the “Regulations for selling and using falcon tracking devices”

## 7- References

The following referenced documents are indispensable for the application of this document. If no issue or revision number is quoted along with the title of a technical specification or standard, the latest published version should be used.

### **EN 300 220-1**

Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 1: Technical characteristics and methods of measurement

### **EN 300 220-2**

Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 2: Harmonised Standard for access to radio spectrum for non specific radio equipment

### **EN 300 330**

Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

### **EN 300 440**

Short Range Devices (SRD); Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Harmonised Standard for access to radio spectrum

### **EN 301 839-2**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Ultra Low Power Active Medical Implants (ULP-AMI) and Peripherals (ULP-AMI-P) operating in the frequency range 402

MHz to 405 MHz; Part 2: Harmonized EN covering essential requirements of article 3(2) of the R&TTE directive.

**EN 301 839-1**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Ultra Low Power Active Medical Implants (ULP-AMI) and Peripherals (ULP-AMI-P) operating in the frequency range 402 MHz to 405 MHz; Part 1: Technical characteristics and test methods

**EN 302 195-2**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio equipment in the frequency range 9 kHz to 315 kHz for Ultra Low Power Active Medical Implants (ULP-AMI) and accessories; Part 2: Harmonize EN covering essential requirements of article 3(2) of the R&TTE directive.

**EN 302 195-1**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio equipment in the frequency range 9 kHz to 315 kHz for Ultra Low Power Active Medical Implants (ULP-AMI) and accessories; Part 1: Technical characteristics and test methods

**EN 302 208-2**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2 W and in the band 915 MHz to 921 MHz with power levels up to 4 W; Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive

**EN 302 308-1**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio Frequency Identification Equipment operating in the band 865 MHz to

868 MHz with power levels up to 2 W and in the band 915 MHz to 921 MHz with power levels up to 4 W; Part 1: Technical requirements and methods of measurement

#### **EN 302 291-1**

Short Range Devices (SRD); Close Range Inductive Data Communication equipment operating at 13,56 MHz; Short Range Devices (SRD); Close Range Inductive Data Communication equipment operating at 13,56 MHz; Part 1: Technical characteristics and test methods.

#### **EN 302 291-2**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Close Range Inductive Data Communication equipment operating at 13.56 MHz; Part 2: Harmonised EN under article 3.2 of the R&TTE directive.

#### **EN 302 536**

Short Range Devices (SRD); Radio equipment operating in the frequency range 315 kHz to 600 kHz for Ultra Low Power Animal Implantable Devices (ULP-AID) and associated peripherals; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

#### **EN 302 372-2**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Equipment for Detection and Movement; Tanks Level Probing Radar (TLPR) operating in the frequency bands 5,8, 10, 25, 61 and 77 GHz; Part 2: Harmonized EN under Article 3.2 of the R&TTE directive.

### **EN 302 510-2**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio equipment in the frequency range 30 MHz to 37,5 MHz for Ultra Low Power Active Medical Membrane Implants and Accessories; Part 2: Harmonized EN covering essential requirements of article 3(2) of the R&TTE directive.

### **EN 302 510-1**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio equipment in the frequency range 30 MHz to 37,5 MHz for Ultra Low Power Active Medical Membrane Implants and Accessories; Part 1: Technical characteristics and test methods

### **EN 302 537-2**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Ultra Low Power Medical Data Service Systems operating in the frequency range 401 MHz to 402 MHz and 405 MHz to 406 MHz; Part 2: Harmonized EN covering essential requirements of article 3(2) of the R&TTE directive.

### **EN 302 537-1**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Ultra Low Power Medical Data Service Systems operating in the frequency range 401 MHz to 402 MHz and 405 MHz to 406 MHz; Part 1: Technical characteristics and test methods

### **EN 305 550-2**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 40 GHz to 246 GHz frequency range; Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive



### **EN 301 489-1**

Electromagnetic compatibility and Radio spectrum Matters (ERM);  
Electromagnetic Compatibility (EMC) standard for radio equipment and  
services; Part 1: Common technical requirements.

### **EN 301 489-3**

ElectroMagnetic Compatibility (EMC) standard for radio equipment and  
services; Part 3: Specific conditions for Short Range Devices (SRD)  
operating on frequencies between 9 kHz and 246 GHz; Harmonised  
Standard for ElectroMagnetic Compatibility

### **EN 301 489-27**

Electromagnetic compatibility and Radio spectrum Matters (ERM);  
Electromagnetic Compatibility (EMC) standard for radio equipment and  
services – Part 27: Specific conditions for Ultra Low Power Active Medical  
Implants (ULP-AMI) and related peripheral devices (ULP-AMI-P).

### **EN 301 489-31**

Electromagnetic compatibility and Radio spectrum Matters (ERM);  
Electromagnetic Compatibility (EMC) standard for radio equipment and  
services; Part 31: EMC for radio equipment in the 9 to 315 kHz band for  
Ultra Low Power Active Medical Implants (ULP-AMI) and related  
peripheral devices (ULP-AMI-P).