

SAR test exclusion according to FCC, IC and EN

Report identification number: 1-0670/15-01-11

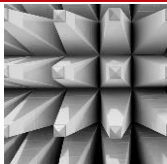
Certification numbers and labeling requirements	
FCC ID	2AGCQANY2400SC1REV0
IC number	20829-0ANY2400SC1
HVIN (Hardware Version Identification Number)	REV00
PMN (Product Marketing Name)	ISM-Module TrySystem ANY
FVIN (Firmware Version Identification Number)	-/-
HMN (Host Marketing Name)	-/-

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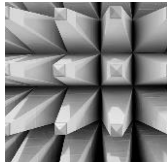
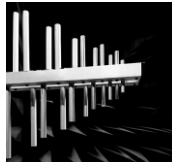


EUT technologies:

Technologies:	Max. power: (Average incl. Tune up) [dBm]	Max. power: (Average incl. Tune up) [mW]
ZigBee	Conducted: 0.3	Conducted: 1.1
ZigBee	Radiated: 3.8	Radiated: 2.4

Power measurement results from CETECOM test report 1-0670/15-01-04:

T _{nom}	V _{nom}	2402 MHz	2440 MHz	2480 MHz
Conducted power [dBm] Measured with OQPSK modulation		-0.7	-0.2	0.3
Radiated power [dBm] Measured with OQPSK modulation		3.7	2.7	3.8
Gain [dBi] Calculated		4.4	2.9	3.5



SAR test exclusion according to KDB447498 D01 (General RF Exposure Guidance v06)

Equation from Chapter 4.3.1: Standalone SAR test exclusion considerations (page 11 and ff).

(1) Standalone SAR test exclusion for 100 MHz to 6 GHz at test separation distances ≤ 50mm

$$P \leq (\text{Threshold}_{1\text{-g};10\text{-g}}) * d_{\text{separation}} / f_{(\text{GHz})}^{1/2}$$

where

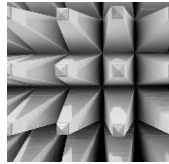
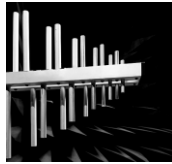
P max. Power of channel (incl. tune-up tolerance [mW]), Average cond.
 Threshold_{1-g;10-g} is 3 for 1-g; 7.5 for 10-g
 d_{separation} is the min. test separation distance in mm
 (5 mm is used if the distance is less)
 f_(GHz) is the RF channel transmit frequency in GHz

The table below gives the calculated maximal power that could be used for source based time averaged conducted power, adjusted for tune up tolerance. If this is below the calculated value SAR testing is obsolete.

f in [MHz]	d _{separation} [mm]	Threshold _{1-g;10-g}	Powerlimit [mW]	P _{max-declared} [mW]	Exclusion
2402.00	5	3	9.7	-0.7	yes
2441.00	5	3	9.6	-0.2	yes
2480.00	5	3	9.5	0.3	yes

Note: P_{max-declared} = Average Power Conducted + Tune up tolerance (max value)

Where Tune up tolerance : **+1dB; -3 dB**



Standard: RSS-102 Issue 5 March 2015: Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

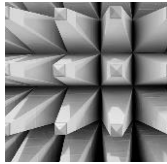
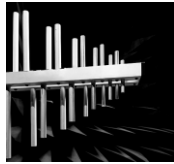
Standard: Section 2.5.1 Exemption Limits for Routine Evaluation — SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1

Table 1: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤ 300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

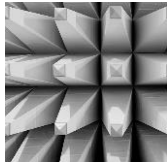
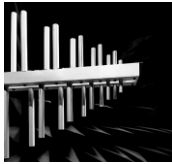
Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤ 300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW



Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power. For controlled use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5. If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

For medical implants devices, the exemption limit for routine evaluation is set at 1 mW. The output power of a medical implants device is defined as the higher of the conducted or e.i.r.p to determine whether the device is exempt from the SAR evaluation.

Technology	ZigBee
Channel/Freq.[MHz]	2402 MHz-2480 MHz
Max.OP Conducted (AVG) [dBm] *)	0.7
Max.OP EIRP (AVG) [dBm] *)	3.8
Highest OP (AVG) for verification [dBm]	3.8
OP for verification [mW]	2.4
Separation distance [mm]	≤ 5 mm
Limit [mW]	4
SAR Exemption limit met	Yes



Human exposure declaration according to EN standards

Nr.	Standard	Country/Region
1	EN 62479	EU/AUS

The compliance is demonstrated based on the following calculation model assessment:

According to EN 62479 compliance is given, when the time based average output power of an RF transmitter does not exceed **20 mW**.

Cetecom test report 1-0670/15-01-04 states **2.4 mW** as maximum timebased averaged output power (radiated).