Annex no. 11

Periodic Operation Characteristics

Date: 2012-06-11

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Vers. no. 1.12

15.231 (e) Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) and may be employed for any type of operation, including operation prohibited in paragraph (a), provided the intentional radiator complies with the provisions of paragraphs (b) through (d) of this Section, except the field strength table in paragraph (b) is replaced by the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emission (microvolts/meter)	
40.66 - 40.70	1,000	100	
70 - 130	500	50	
130 - 174	500 to 1,500 **	50 to 150 **	
174 - 260	1,500	150	
260 - 470	1,500 to 5,000 **	150 to 500 **	
Above 470	5,000	500	

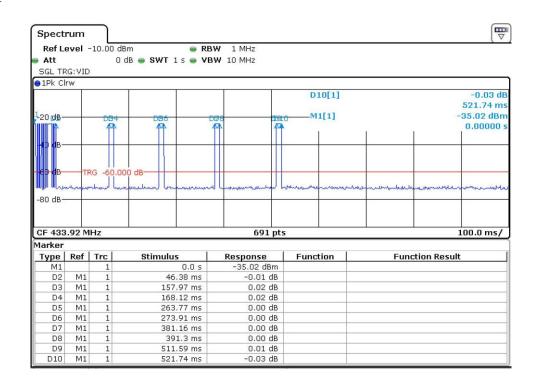
** linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, μ V/m at 3 meters = 22.72727(F) - 2454.545; for the band 260-470 MHz, μ V/m at 3 meters = 16.6667(F) - 2833.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

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Single burst



One burst :

wake up pattern + 4 frames are sent all 16 seconds.

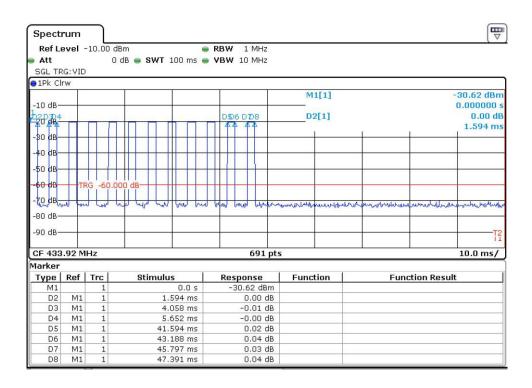
Burst duration : Silent period : 521.74 ms ≥ 15.6522 seconds

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Single burst

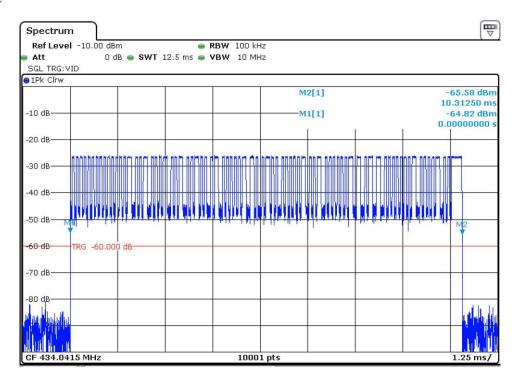
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Att		0	dB 🥌 SWT 500 ms 🧉	VBW 10 MHz				
SGL TR	G: VID							
1Pk Cl	rw							
					D8[1]		0.58 di	
-10 dB-	dB			-			392.029 m	
D30 D3		D3D4	D5D6 M1[1]		D7D8	D7D8 -31.31 dBn		
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-00 00	×							
-90 dB-			T1	-T2				
CF 433.92 MHz				691 pts		50.0 ms/		
1arker							,	
Туре	Ref	Trc	Stimulus	Response	Function	Function	Result	
M1		1	0.0 s	-31.31 dBm				
D2	M1	1	47.101 ms	0.08 dB				
D3	M1	1	157.971 ms	0.61 dB				
D4	M1	1	168.116 ms	0.65 dB				
D5	M1	1	263.768 ms	0.89 dB				
D6	M1	1	273.913 ms	0.86 dB				
D7	M1	1	381.159 ms	0.62 dB				
D8	M1	1	392.029 ms	0.58 dB				

Wake up pattern (ASK modulated)



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Single frame



(worst case transmission times)

The burst consists:

one single pulse train (wake up) of 46.38 ms with 12 single pulses of 1.594 ms = 19.13 ms four frames of 10.31 ms

The measured worst case duration for a single pulse transmission in any 100 ms time window is 19.128 ms.

Maximum transmitting duration in every 100 ms period: 19.128 ms

Averaging factor = 20*log(19.13/100)= -14.3 dB

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