

# W53帯におけるDFSパルスパターンの暫定的な修正案 について

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# W53帯におけるDFSパルスパターンの暫定的な修正案

- 5GHz無線LAN作業班第4回アドホック会合にて気象庁より提案したW53帯DFSパルスパターン修正案について、無線LAN各社による検証試験の結果、一部チップベンダーのDFSのアルゴリズムでは対応できないことがわかった（第7回アドホック会合資料5GHzAD7-3）。
- 当面、現行の気象レーダーにDFSが対応するよう暫定的なパルスパターン規格案を提案する。
- 数年後に、気象レーダーが今後使用する予定のパルスパターンにもDFSが対応できるよう、検討を求める。

## 数年後に対応が必要なW53帯DFSパルスパターンの規格案

Table D.4: Parameters of radar test signals

| Radar test signal #<br>(see note 1 to note 3) | Pulse width W (μs) |     | Pulse repetition frequency PRF (PPS) |                       | Number of different PRFs | Pulses per burst for each PRF (PPB)<br>(see note 5) |
|---|--------------------|-----|--------------------------------------|-----------------------|--------------------------|---|
|   | Min                | Max | Min                                  | Max                   |                          |   |
| 1'  | 0,5                | 5   | 200<br>(see note 7)                  | 1 000<br>(see note 7) | 1                        | 10<br>(see note 8)                                  |
| 2'  | 0,5                | 15  | 200<br>(see note 7)                  | 1 600<br>(see note 7) | 1                        | 15<br>(see note 8)                                  |

NOTE 1~4 (略)

NOTE 5: The total number of pulses in a burst is equal to the number of pulses for a single PRF multiplied by the number of different PRFs used.

NOTE 6: For the CAC and Off-Channel CAC requirements, the minimum number of pulses (for each PRF) for any of the radar test signals to be detected in the band 5 600 MHz to 5 650 MHz shall be 18.

NOTE 7: A modulated long pulse which width is 20 - 400 μs (which has an accuracy of ±5%) is also emitted after at least 20 μs since emitting the normal pulse. The modulation to be used is a linear (or non-linear) chirp modulation with a ±0,5 - 1,0 MHz frequency deviation. See Figure D.6.

NOTE 8: This means minimum value.

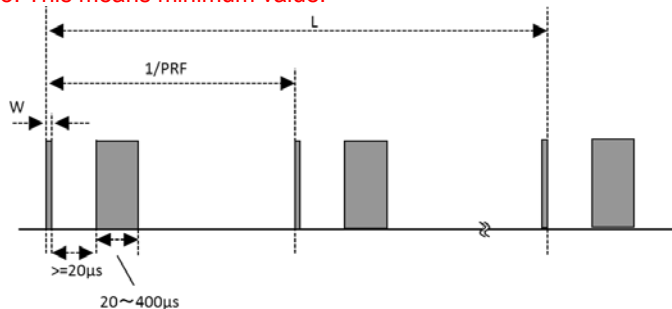


Figure D.6: General structure of a single burst/constant PRF based solid-state radar test signal

## 暫定的なW53帯DFSパルスパターンの規格案

| Radar test signal #<br>(see note 1 to note 3) | Pulse width W1 (μs)<br>(see note 9) |     | Pulse repetition frequency PRF (PPS) |      | Number of different PRFs | Minimum number of pulses per burst for each PRF (PPB)<br>(see note 5) | Remarks       |
|---|-------------------------------------|-----|--------------------------------------|------|--------------------------|---|---------------|
|   | Min                                 | Max | Min                                  | Max  |                          |   |               |
| 1'  | 0,5                                 | 5   | 200                                  | 1000 | 1                        | 10  | 電子管レーダー       |
| 2'  | 0,5                                 | 15  | 200                                  | 1600 | 1                        | 15  |               |
| 1''   | 0,5                                 | 5   | 200                                  | 1000 | 1                        | 0.015 PRF   | (see note 7') |
| 2''   | 0,5                                 | 15  | 200                                  | 1600 | 1                        | 0.015 PRF   |               |
| 13'   | 0,5                                 | 1,5 | 1114                                 | 1118 | 1                        | 30  | (see note 8') |
| 14'   | 0,5                                 | 1,5 | 928                                  | 932  | 1                        | 25  |               |
| 13''  | 0,5                                 | 1,5 | 886                                  | 890  | 1                        | 24  |               |
| 14''  | 0,5                                 | 1,5 | 738                                  | 742  | 1                        | 20  |               |

固体素子レーダー

NOTE 1~4 (略)

NOTE 5: The total number of pulses in a burst is equal to the number of pulses for a single PRF multiplied by the number of different PRFs used.

NOTE 6: (略) .

NOTE 7: A modulated long pulse which width W2 is 20 - 110 μs (which has an accuracy of ±5%) is also emitted after at least 70 μs (T1) since emitting the normal pulse. The modulation to be used is a linear (or non-linear) chirp modulation with a ±0,5 - 1,0 MHz frequency deviation. Duty (which is pulse width multiplied by PRF) is less than 10 %. See Fig. D.6'.

NOTE 8': A modulated long pulse which width W2 is 30 - 32 μs (which has an accuracy of ±5%) is also emitted after at least 50 μs (T1) since emitting the normal pulse. The modulation to be used is a linear (or non-linear) chirp modulation with a ±0,5 - 1,0 MHz frequency deviation. See Fig. D.6'.

NOTE 9: Pulse width is defined as transmit pulse half power width.

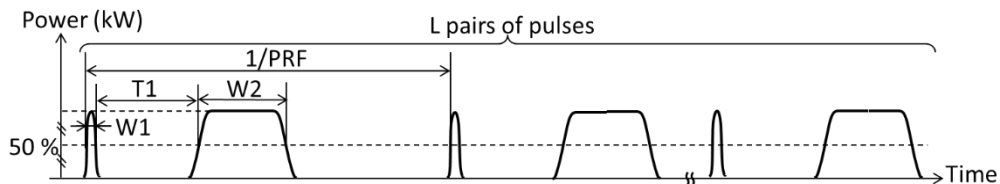


Figure D.6': General structure of a single burst/constant PRF based solid-state radar test signal

# 暫定規格案に対応して検証に使用するレーダーパターンの修正例

- 表中、赤字の部分を中心に現在、詳細を確認中（修正の可能性あり）。
- #15～#20への対応は、暫定対応中とは必要としない。

| No.  | 時間 [μs]       |               |               |               | 長パルス波形形状 |      |        | パルス組数<br>PPB<br>(L pairs) | PRF<br>[Hz] | 備考             |                  |                   |                    |             |
|------|---------------|---------------|---------------|---------------|----------|------|--------|---------------------------|-------------|----------------|------------------|-------------------|--------------------|-------------|
|      | 短パルス幅<br>(W1) | ブランク1<br>(T1) | 長パルス幅<br>(W2) | ブランク2<br>(T2) | α        | γ    | B(MHz) |                           |             | タイプ            | PPB/PRF<br>[sec] | Duty ratio<br>[%] | Channel<br>Loading | Test<br>No. |
| 1    | 2.5           | 0             | 0             | 3028          | —        | —    | —      | 10                        | 330         | 気象庁一般クライストロン   | 0.030            | 0.1               | 30%                | 1           |
| 2    | 1             | 0             | 0             | 1063          | —        | —    | —      | 27                        | 940         | 気象庁一般クライストロン   | 0.029            | 0.1               | 30%                | 1           |
| 3    | 1             | 0             | 0             | 1329          | —        | —    | —      | 21                        | 752         | 気象庁一般クライストロン   | 0.028            | 0.1               | 30%                | 1           |
| 4    | 2             | 0             | 0             | 3844          | —        | —    | —      | 10                        | 260         | 国交省クライストロン     | 0.038            | 0.1               | 30%                | 1           |
| 5    | 2             | 0             | 0             | 2379          | —        | —    | —      | 15                        | 420         | 国交省クライストロン     | 0.036            | 0.1               | 30%                | 1           |
| 6    | 1             | 0             | 0             | 892           | —        | —    | —      | 32                        | 1120        | 気象庁DRAWクライストロン | 0.029            | 0.1               | 30%                | 2           |
| 7    | 1             | 0             | 0             | 1189          | —        | —    | —      | 24                        | 840         | 気象庁DRAWクライストロン | 0.029            | 0.1               | 30%                | 1           |
| 8    | 1             | 72            | 64            | 825           | 0        | 1.48 | 1.2    | 28                        | 1040        | 気象庁DRAW固体化     | 0.027            | 6.8               | 30%                | 2           |
| 9    | 1             | 72            | 64            | 1065          | 0        | 1.48 | 1.2    | 23                        | 832         | 気象庁DRAW固体化     | 0.028            | 5.4               | 30%                | 1           |
| 10   | 1             | 108           | 100           | 2291          | 0        | 1.48 | 1.67   | 20                        | 400         | 国交省固体化         | 0.050            | 4.0               | 30%                | 1           |
| 11   | 1             | 108           | 100           | 2916          | 0        | 1.48 | 1.67   | 30                        | 320         | 国交省固体化         | 0.094            | 3.2               | 30%                | 1           |
| 12   | 1             | 72            | 64            | 2762          | 0.45     | 1.48 | 2      | 10                        | 345         | 気象庁固体化         | 0.029            | 2.2               | 30%                | 1           |
| 13'  | 1.1           | 56.2          | 30.5          | 808.7         | 0.89     | 1.48 | 1.63   | 30                        | 1116        | 気象庁DRAW固体化     | 0.027            | 3.5               | 30%                | 2           |
| 14'  | 1.1           | 235.2         | 30.5          | 808.7         | 0.89     | 1.48 | 1.63   | 25                        | 930         | 気象庁DRAW固体化     | 0.027            | 2.9               | 30%                | 1           |
| 13'' | 1             | 61            | 32            | 1032          | 1.1      | 1.2  | 2      | 24                        | 888         | 気象庁固体化         | 0.027            | 2.9               | 30%                | 1           |
| 14'' | 1             | 61            | 32            | 1257          | 1.1      | 1.2  | 2      | 20                        | 740         | 気象庁固体化         | 0.027            | 2.4               | 30%                | 1           |
| 15   | 0.5           | 20            | 20            | 585           | 0.1      | 1.48 | 2      | 24                        | 1600        | 固体化(短い長パルス)    | 0.015            | 3.3               | 30%                | 2           |
| 16   | 0.5           | 20            | 20            | 585           | 0.89     | 1.48 | 2      | 24                        | 1600        | 固体化(短い長パルス)    | 0.015            | 3.3               | 30%                | 2           |
| 17   | 5             | 200           | 200           | 2928          | 0.1      | 1.48 | 1      | 10                        | 300         | 固体化(長めの長パルス)   | 0.033            | 6.2               | 30%                | 1           |
| 18   | 5             | 200           | 200           | 2928          | 0.89     | 1.48 | 1      | 10                        | 300         | 固体化(長めの長パルス)   | 0.033            | 6.2               | 30%                | 1           |
| 19   | 15            | 400           | 400           | 4185          | 0.1      | 1.48 | 1      | 15                        | 200         | 固体化(長い長パルス)    | 0.075            | 8.3               | 30%                | 2           |
| 20   | 15            | 400           | 400           | 4185          | 0.89     | 1.48 | 1      | 15                        | 200         | 固体化(長い長パルス)    | 0.075            | 8.3               | 30%                | 2           |

