**IEEE P802.19**

**Wireless Coexistence**

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| Project | IEEE P802.19 Wireless Coexistence WG | |
| Title | Contribution for Comment Resolution, CIDs 271598 and 271599 | |
| Date Submitted | October 21, 2020 | |
| Source | Kazuto Yano (ATR) | E-mail: [kzyano@atr.jp](mailto:kzyano@atr.jp) |
| Abstract | This submission contains proposed comment resolutions to comments CID 271598 and 271599 on D06. | |
| Purpose | For comment resolution on the draft D06. | |
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## CID 271598

### Comment

Low resolution and lack of description for Figure 3.

### Proposed Change

Update figure, and add some sentence to explain Figure 3, if possible.

### Proposed Resolution

REVISED. Replace the Figure 3 to one with high-resolution, and add some explanation about the figure into subclause 7.7.2.

## CID 271599

### Comment

Low resolution for Figure 3.

NOTE: The contributor understand that Figure 4 should be updated. (Figure 3 has a similar comment by CID 271598.

### Proposed Change

Update figure, if possible.

### Proposed Resolution

ACCEPTED. Replace the Figure 4 to one with high-resolution.

## Updated figures

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## Updated figure and text

**7.7.2 Measurement in the 920 MHz band in Japan**

To investigate Sub-1 GHz band radio noise and interfering signals in Japan, the Advanced Telecommunications Research Institute International (ATR) has conducted extensive measurement over the 920 MHz band by using a real time spectrum analyzer. The spectrum utilization was measured at several places including railway stations, university campuses, large exhibition center, football stadium and building. [B38] shows measurement results of radio noise and interference. These measurement results raise the following concerns:

* Several types of machinery emitting powerful radio noise and may have severe impact on wireless communication system:
  + - * Figure 3 shows the measured noise at a railway station. Some train continuously emits radio noise at multiple frequencies over the 920 MHz band. The level of the radio noise becomes stronger when doors of the trains are opened than when the doors are closed.
      * At several open spaces, multiple unknown signals are measured over the 916 to 920 MHz band. Some signals have a bandwidth of 1 MHz and non-negligible signal power.
      * The measurement in football stadium with a game playing shows that loudspeakers and wireless power transfer systems can be sources of high-level radio noise.
* Signals from RFID systems are found at multiple frequencies over the 920 MHz band.
* If there are many cellular users at a place, cellular signals can cause non-negligible interference due to their out-band emission.
* Several wireless communication systems including IEEE Std 802.11ah, IEEE 802.15.4 standard family, and some original communication systems will share the 920 MHz band. They have different transmission patterns such as spectrum shape and duty cycle as shown in Figure 4, which was measured at a large exhibition center during the R&D exhibition of the wireless communication technologies.

These noise and interference can have severe impacts on the performance of IEEE Std 802.11ah and IEEE Std 802.15.4g.



Figure 3 — Spectrum Utilization over 920 MHz Band Measured at Railway Station



Figure 4 — Spectrum Utilization over 920 MHz Band Measured at Exhibition Center