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1. Introduction

The EMC Committees is well formed and good connected by an eMail exploder which is regularly used by the chairman. However, feedback from the MS could still be better. Especially there are not enough reports on disturbance complaints.

In the role of IARU coordinator the possibility to influence standards work though another eMail exploder well established and shows good success. When I see compilation of comments from NCs, I can see exactly, which MS was successful in placing standardization ideas from IARU forward to CISPR.

2. PLC

After a transition period of 2 years, finally the European PLC standard EN 50561-1 is legally applicable and mandatory to be used throughout Europe. That is a great success, especially because since October 2016 the old EN 55022 cannot be used any more. PLC manufactures however are creative and use notified bodies or the technical construction file path to declare conformity. But they are willing to do the switchover to applying the standard soon as some EMC labs reported, as manufacturer are requesting preliminary measurements against EN 50561-1.

Furthermore, the European EMC WP, which is the get-together of the member states' administrations in charge of market surveillance, plan on a measurement campaign of PLC devices in 2017. I can report from Germany, that they are getting ready to start soon.

A new problem however has been arising as EN 50561-1 is only suitable for measuring those modems, which use phase and neutral wire for data communication. Those modems are called SISO devices. We already find so-called MIMO devices on the market, too. They also use the PE wire to open another communication channel to increase the bandwidth. If one uses EN 50561-1 only one channel is assessed. The situation also opens a loophole for industry as they can claim that there is no standard for MIMO devices available. This gives them a good reason to cheat out on the TCF route for compliance. To fill that hole CENELEC has started in TC 210 WG11 to write a new standard on MIMO devices, which will be EN 50561-4. However, Europeans ADCO has decided to use EN 50561-1 meanwhile to also assess MIMO modems until part 4 is finished.

The standard EN 50561-2 for access systems was voted negative, which was also a result of IARUs intervention in this matter. Nobody really wants to continue working on the paper, even though it was decided to go for another try to fulfil M/313 of the European Commission.

But the work on the paper is at a standstill at the moment. The standard EN 50561-3, for in house devices above 30 MHz was voted positive and is about to be listed on the official journal of the European Union and should be applicable immediately once it is listed. There is no additional transition time as in case of part 1.

Smart meter manufacturers seem to have changed to using very low frequencies only. There is a system available which operates below 148,5 kHz, another rare system uses frequencies up to 500 kHz. There were no complaints from amateurs. Even more often smart meters do not use PLC technology at all, but connect to a DSL-network in the house or use GSM connection to the outside world.

3. Wind turbines

Many cases of harmful interference from wind turbines have been reported from the UK. In Germany are two cases known, while no reports from any other MS exist. Meanwhile a new standardization group has formed internationally as TC88 PT40 and had 3 meetings since forming. I am a member of this group. The standard is far from being finished, but there will certainly be an in-situ measurement method implemented, which is based on CISPR 11 limits and a measurement distance of 30 m. I am not happy with this distance to assess such large objects as simulations have shown great gradients in the magnetic field at 30 m, leading to very great uncertainty and underestimation of the radiation. Other experts in the group feel the same and we discuss a distance of 100 m instead.

4. Photovoltaics

The standards situation is partly save now as all grid-connected inverters need to be measured at the DC power port. Unfortunately, CISPR 11 Ed. 6 does not cover inverters or converters, which are not connected to the grid. One famous example is a device called optimizer, which is a DC/DC converter each solar panel to boost voltage when partly shaded. They disturb heavily and there are several severe disturbance cases, one of which was reported in QST magazine. CISPR/B has reacted by putting DC/DC converters, which are not grid connected, as well as battery ports on the work plan of CISPR 11 maintenance.

5. WPT

Wireless Power Transfer (WPT) for electric vehicles is very heavily worked on in CISPR and in ETSI. The standard in ETSI is about to be finished and contains a common mode measurement for spurious emission requirements above 1 MHz, which I inserted successfully. There is a great relaxation for WPT in the frequency interval 79 kHz to 90 kHz, which does not directly affect amateur services, but could compromise time and frequency beacon reception due to blocking. It is also a bit disturbing, that compatibility and coexisting studies are not finished. This should be followed in ITU-R and in SE24.

CISPR is progressing slower with 4 frequency intervals in which there are relaxations, but 15 dB lower than in ETSI. I am confident that there will be an alignment to the ETSI limits at least for high power devices. The greatest problem In the CISPR progress is the missing common mode measurement, which I follow by inserting comments accordingly.

6. LED

The standard CISPR 15 is fine, but there are still many disturbance complaints out there, due to many illegal lamps on the market. This is more a surveillance problem, which can only be solved locally in the member states. However, the European Broadcast Union has recently published a paper and a video, which shows DAB+ being compromised. This publication does raise many concerns within administrations, forcing them to react.

7. EMCC chair

Due to my change in job, I need to discontinue my chairman position of the EMCC of IARU Region 1. Tore Worren, LA9QL, has accepted to lead the EMCC until the conference in Landshut.

8. Future CISPR representation

I will still be working in CISPR on behalf of the federal network agency in Germany. But the representation of IARU towards CISPR must done by someone else, who has not yet been found. So, the work partition table looks a bit empty at the moment.

Subcommittee	Responsible participant	Standards	Remarks
CISPR S	OZ8CY	-	Steering Committee
CISPR A	None	CISPR 16 series except CISPR 16-4-4	Measurement of radio interference and statistical methods
CISPR B	None	CISPR 11 CISPR 18	Measurement of interference regarding industrial, scientific or medical (ISM) equipment, high voltage equipment, power lines, or traction devices
CISPR D	None	CISPR 12 CISPR 25	Interference in motor vehicles
CISPR F	None	CISPR 14-1 CISPR 14-2 CISPR 15 CISPR 30	Interference in household appliances, tools, and lighting equipment
CISPR H	None	IEC 61000-6-3 IEC 61000-6-4 CISPR 31, CISPR 16-4-4	Limitations to protect radio frequencies
CISPR I	OZ8CY	CISPR 22 CISPR 20 CISPR 24 CISPR 13 CISPR 32 CISPR 35	Electromagnetic compatibility of information technology (IT) equipment (e.g. computers), multimedia / hi-fi devices and radio equipment (receivers)

9. Skype conferences and wiki

EMCC has decided to hold regular Skype conferences, which has been done 3 times since Vienna. They were valued as a success by those who participated and should be continued. The wiki, which was implemented by Michael Kastelic, OE1MCU, is not filled as much as was hoped at the time of the decision.

10. Noise measurements and Noise-Reporter

The measurement of man-made noise at the location of amateur station becomes increasingly important for the amateur to assess the electromagnetic environment and check if it is normal. But it is also highly interesting for MS to collate data on a possible increase of the noise floor, which should be reported to CISPR and the ITU. There is an ITU measurement campaign ongoing, which concludes in 2019. Furthermore, VERON has started a very challenging measurement campaign of scientific quality, which should be repeated in other countries as well. However, such a campaign is not easy to do. In one Skype conference of the EMCC it was agreed, that it would be preferable to have every MS to start a study of man-made noise, but it was felt, that it is not feasible, due to lack of participants.

Meanwhile I published a software called "Noise-Reporter" which is available on the IARU Region 1 Website (https://www.iaru-r1.org/index.php/emc/1605-noise-reporter-v10). The basic idea of this tool is to monitor man-made noise in the amateur's own shack and compare them to the man-made noise data from ITU. You do not need any measurement equipment to operate the program, just your amateur gear. The benefit for the user is to see the performance of the local electromagnetic environment against the "normal" state. The benefit for the MS is that the data can be collected (hopefully in the 1 000s) and analysed for a global picture of the noise floor. The uncertainties of the individual measurement may cancel out, if the participants figure is high enough. It was decided to look at the software and discuss how it can be used as an alternative to noise measurements. EMCC proposed to write an input paper for the conference to encourage people to make noise measurements in MS, based on the 'Noise Reporter.'

11. Conclusion

Standardization has been very effective covering most relevant standards. The good work of the MS active in national committees should further be supported by supplying them with prewritten comment proposals on all relevant standards.

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EMC Committee Chair (until mid-March 2017)