Claims

1. A multi-communication (MC) system supporting mitigation plan for interfering spurious products, comprising:
   - at last one first client that is configured to perform wireless communication;
   - at least one second client that is capable of generating spurious product that potentially interferes with said first client communication;
   - a Clock-Frequency-BaseBand Management Unit (CFBBMU) module configured to repeatedly:
     i. generates a spurious map based on data collected from one or more of said clients; and
     ii. utilizes said generated spurious map to mitigate clients' interference.
2. The MC system of claim 1, further comprising an arbitrator to prioritize between clients request by:
     i. generating a priority map for clients requests;
     ii. utilizing said generated spurious map to mitigate clients' interference upon priority; and
     iii. granting client mitigation configuration upon priority.
3. The MC system of claim 1 wherein said CFBBMU is configured to inform said first clients of the required mitigation based on pre-defined criteria.
4. The MC system of claim 1, wherein said at least one first client is selected from the group consisting of: a receiver, a transmitter, or a transceiver.
5. The MC system of claim 1, wherein said CFBBMU is executed on one of said first clients or said second clients.
6. The MC system of claim 1, wherein said CFBBMU is executed on a separate unit and remotely communicates with said clients.
7. The MC system of claim 1, wherein at least some of said first clients and some of said second clients are the same entity.

8. The MC system of claim 1, wherein the data collected from the clients is selected from the group consisting of: data relative to clients' frequency settings, data relative to clients' configuration, clients' receivers quality of service, clients' receivers modulation code scheme, clients' receivers code rate (CR), clients receivers targeted throughput or any combination thereof.

9. The MC system of claims 1, wherein said spurious map is selected from the group consisting of:

   a) overall map of interferences generated by internal sources of clients,

   b) map of a specific band of interest,

   c) spectrum map of all interference signal products generated by all clients' sources.

10. The MC system of claim 1, wherein the generation of said spurious map comprising a systematic spurious mapping process.

11. The system of claim 1, wherein the wireless communication is performed by one or more of the followings means: Bluetooth (BT), a global positioning system (GPS), frequency modulation (FM) radio, wireless fidelity (Wi-Fi), near field communications (NFC), radio frequency identification (RFID), long term evolution (LTE), (UMTS), (GSM) satellite communications (SATCOM), Wireless Universal Serial Bus (USB), 5G, 3rd generation (3G), WCDMA, CDMA, cognitive radio, direct sampling radio, or any combination thereof.

12. The system of claim 1, wherein each of the clients is selected from the list of Line Replaceable Units (LRU), Lower Line Replaceable Units (LLRU), Shop Replaceable Units (SRU) or any combination thereof.

13. A method for interfering spurious products, comprising:

   a) providing at last one first client that is configured to perform wireless communication and at least one second client that is capable of generating spurious product that potentially interferes with said first client communication;

   b) repeatedly generating a spurious map based on data collected from one or more of said clients; and

c) utilizing said generated spurious map to mitigate clients' interference.

14. The method according to claim 13, further comprising sharing said generated spurious map with said clients to perform local mitigation.

15. The method of claim 13, further comprising informing said first clients of required mitigation based on pre-defined criteria.

16. The method of claim 13, wherein the generation of said spurious map comprising a systematic spurious mapping process which comprises one or more of the following functions:

a) building frequency sources vector with identification (ID) of each source (local oscillator (LO), Analog to digital converter (ADC) and the client it belongs);

b) building Binary coded decimal (BCD) sign routine;

c) building harmonic permutation matrix;

d) generating spurious map routine; and

e) generating a spurious sort procedure.

17. The method of claim 16, wherein said BCD matrix is a matrix in size of $2^{n} \times n$, when n is defined as the number of total frequency sources, wherein each entry of said matrix represents a sign.

18. The method of claim 16 wherein said harmonic permutation matrix is a matrix of frequency harmonics permutations between clients, in size of $((P+1)^{n}-1) \times n$, where P is a predetermined integer value "P" that defines the maximum frequency harmonics, wherein each matrix entry storing a value between 0 to P.

19. The method of claim 17, wherein an efficient spurious map routine that generates the spurious map for each BCD matrix signs combination row, results in a set of 2^{n} sign harmonics permutation matrices, which can be optimized utilizing symmetry of the BCD matrix.

20. The method of claim 16, wherein the matrix of frequency harmonics permutations further comprising a row which is an identifier containing clients' ID tag and source

~~type where source type may be local oscillators (LOs), ADC/DAC sampling CLKs, reference CLKs, DC/DC clocks, timing CLKs, CLK distribution outputs, or any frequency thereof.~~

~~21. A non-transitory computer-readable medium comprising instructions, which when executed by at least one processor, causes the processor to perform the method of claim 13.~~

~~22. A non-transitory computer-readable medium sorting instructions that, when executed by a computer, cause the computer to:~~

- ~~receive configuration of oscillators and CLK frequencies from all clients;~~
- ~~receive tag names of all clients;~~
- ~~receive victim's frequencies that required to be mitigated;~~
- ~~generate a spurious map based on the configuration, tag names, and victim frequencies inputs from clients and level of harmonic of the mapping;~~
- ~~generate cancellation signals for clients;~~
- ~~receive interrupts from high priority clients; and~~
- ~~perform arbitration between clients.~~

~~23. The non-transitory computer-readable medium of claim 22, wherein the interrupts are used to optimize and mitigate high priority clients.~~

1. A method for coexistence and spurious mitigation in multicom platforms, comprising:
    a) receiving signals from a plurality of communication devices;
    b) analyzing the received signals to identify spurious emissions and interferences;
    c) generating a mitigation plan based on the analysis; and
    d) transmitting the mitigation plan to the communication devices for mitigating the spurious products.
2. The method of claim 1, further comprising:
    a) defining a number of signals and their corresponding frequencies from the plurality of communication devices;

b) defining bands of interest by determining the channel frequency and its bandwidth;

c) generating a Binary Coded Decimal (BCD) code and a sign for each signal frequency per BCD code;

d) analyzing the defined signals and their frequencies to identify spurious emissions and interferences within the defined bands of interest;

e) generating a mitigation plan based on the analysis, wherein the mitigation plan includes a spurious map; and

f) transmitting the mitigation plan including the spurious map to the communication devices for mitigating the spurious products.

3. The method of claim 2, wherein defining a number of signals further includes selecting from Local Oscillator (LO), Intermediate Frequency (IF), Clock (CLK), or Crystal Oscillator (XTAL) signals.
4. The method of claim 1, further comprising determining the frequency, power, and timing characteristics of the received signals to identify the spurious emissions and interferences.
5. The method of claim 1, further comprising assigning specific frequency bands or channels to the communication devices to minimize the spurious emissions and interferences.
6. The method of claim 1, further comprising adjusting transmission power levels of the communication devices to reduce the spurious emissions and interferences.
7. The method of claim 1, further comprising implementing time-division or frequency-division multiplexing techniques to avoid collisions and interferences between the communication devices.
8. The method of claim 1, further comprising dynamically updating the plan based on changes in the operating environment or performance of the communication devices.
9. A system for coexistence and spurious mitigation in multicom platforms, comprising:

a) a plurality of communication devices;

b) a receiver configured to receive signals from the communication devices;

c) a unit configured to analyze the received signals to identify spurious emissions and interferences;

d) a unit configured to generate a mitigation plan based on the analysis, wherein the mitigation plan including a spurious map; and

e) a transmitter configured to transmit the mitigation plan to the communication devices for mitigating the spurious products.

10. The system of claim 9, wherein the unit configured to analyze the received signals further comprises a signal processing unit for determining the frequency, power, and timing characteristics of the received signals to identify the spurious emissions and interferences.

11. The system of claim 9, wherein the unit configured to generate a plan further comprises a unit for assigning specific frequency bands or channels to the communication devices to minimize the spurious emissions and interferences.

12. The system of claim 9, wherein the unit configured to generate a plan further comprises a unit for adjusting transmission power levels of the communication devices to reduce the spurious emissions and interferences.

13. The system of claim 9, wherein the unit configured to generate a plan further comprises a unit for implementing time-division or frequency-division multiplexing techniques to avoid collisions and interferences between the communication devices.

14. The system of claim 9, wherein the unit configured to generate a plan further comprises a unit for dynamically updating the plan based on changes in the operating environment or performance of the communication devices.

15. The system of claim 9, wherein the unit configured to generate the mitigation plan is further configured to generate the spurious map based on Binary Coded Decimal (BCD) code and sign permutations.