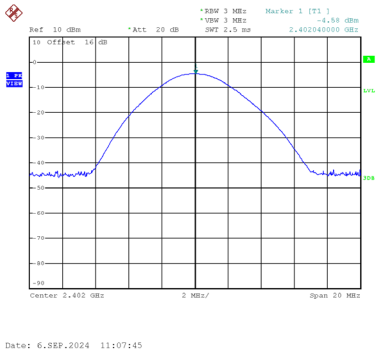
Test Mode	TX Mode _1Mbps

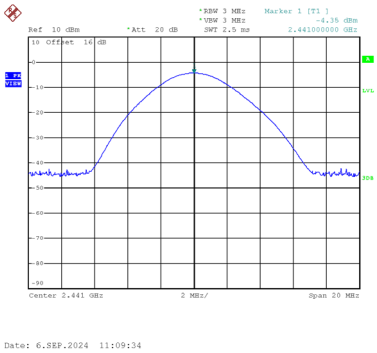
Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Test Result
00	2402	-4.58	20.97	0.1250	Pass
39	2441	-4.35	20.97	0.1250	Pass
78	2480	-4.19	20.97	0.1250	Pass

Note: Output power = Measure result + Cable loss

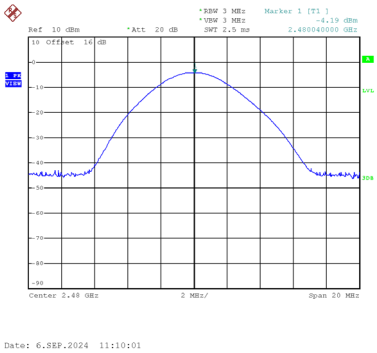
CH00



CH39



CH78

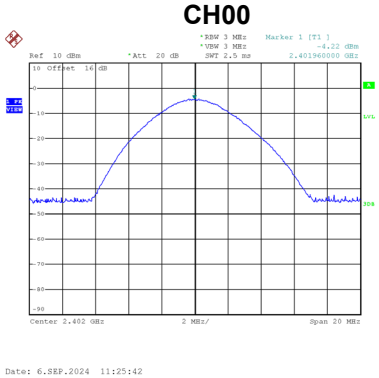


Test Mode	TX Mode _2Mbps

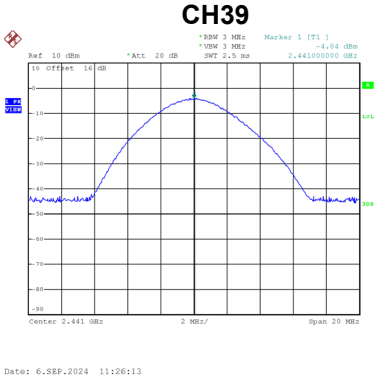
Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Test Result
00	2402	-4.22	20.97	0.1250	Pass
39	2441	-4.04	20.97	0.1250	Pass
78	2480	-3.81	20.97	0.1250	Pass

Note: Output power = Measure result + Cable loss

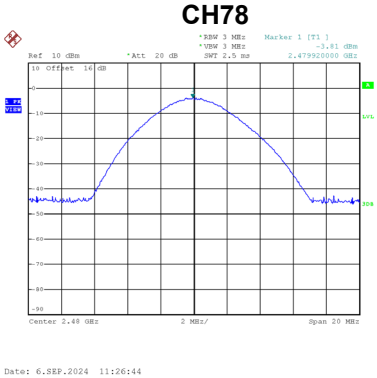
CH00



CH39



CH78

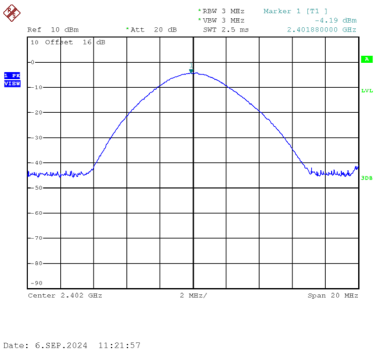


Test Mode	TX Mode _3Mbps

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Test Result
00	2402	-4.19	20.97	0.1250	Pass
39	2441	-4.05	20.97	0.1250	Pass
78	2480	-3.81	20.97	0.1250	Pass

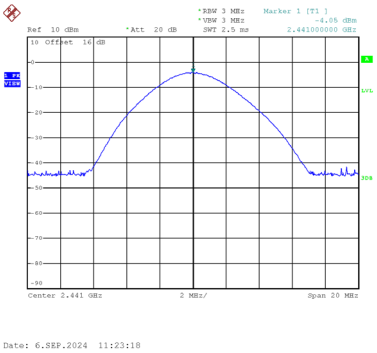
Note: Output power = Measure result + Cable loss

CH00



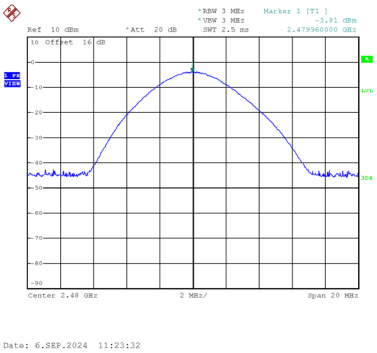
Date: 6.SEP.2024 11:21:57

CH39



Date: 6.SEP.2024 11:23:18

CH78

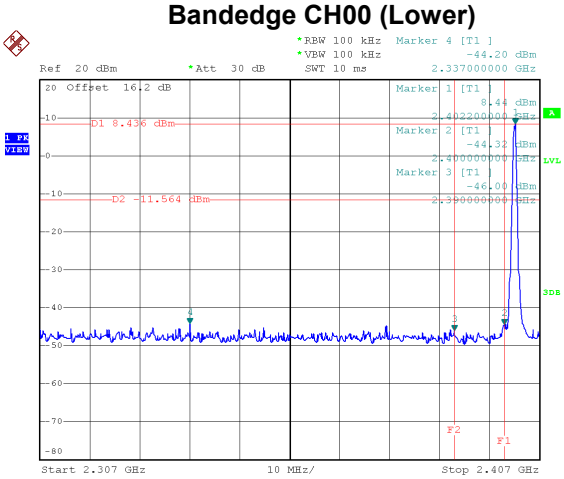


Date: 6.SEP.2024 11:23:32

APPENDIX J - CONDUCTED SPURIOUS EMISSION

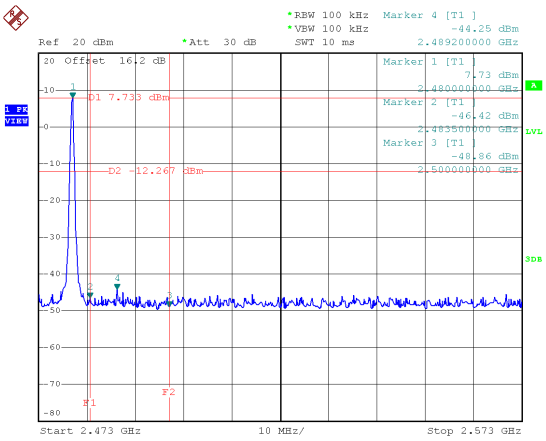
Test Mode	TX Mode _1Mbps

Bandedge CH00 (Lower)



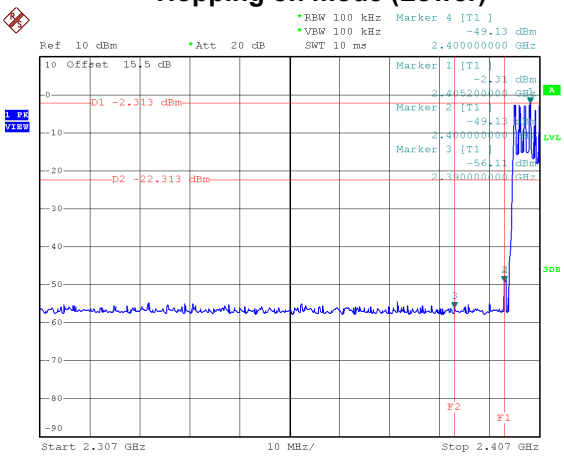
Date: 16.JUL.2024 10:55:35

Bandedge CH78 (Upper)



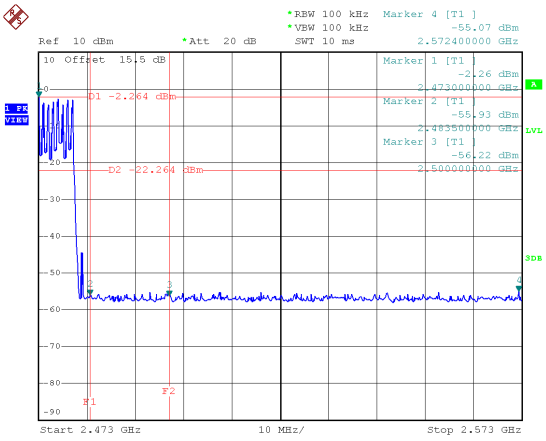
Date: 16.JUL.2024 11:02:07

Hopping on mode (Lower)



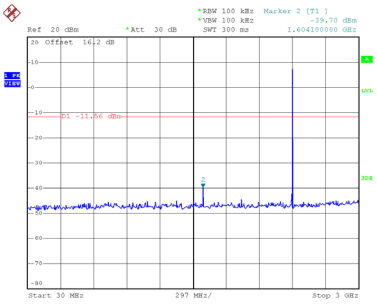
Date: 12.SEP.2024 10:24:57

Hopping on mode (Upper)

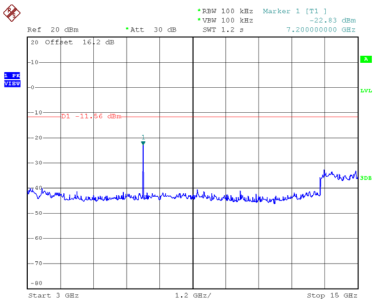


Date: 12.SEP.2024 10:25:32

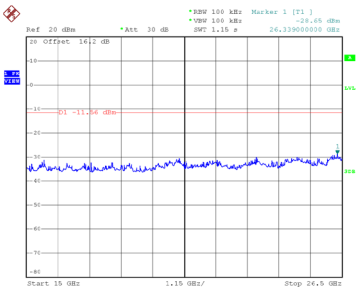
CH00 – 10th Harmonic of the fundamental frequency



Date: 16.JUL.2024 10:56:33

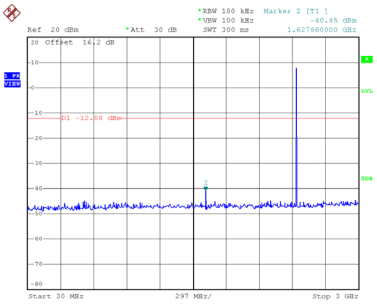


Date: 16.JUL.2024 10:56:42

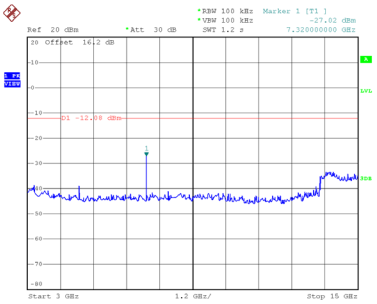


Date: 16.JUL.2024 10:56:50

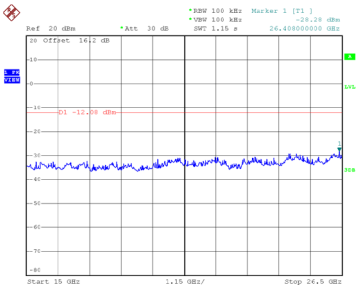
CH39 – 10th Harmonic of the fundamental frequency



Date: 16.JUL.2024 11:00:43

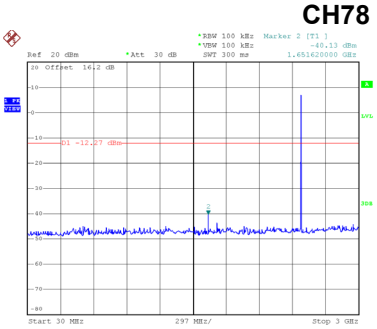


Date: 16.JUL.2024 11:00:51

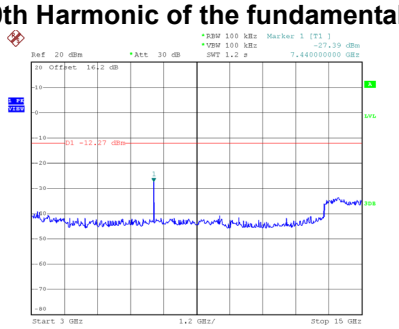


Date: 16.JUL.2024 11:01:00

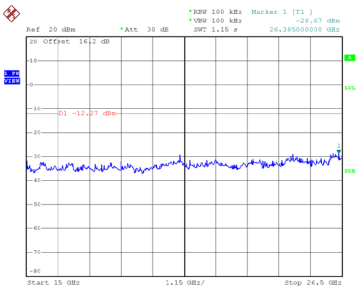
CH78 – 10th Harmonic of the fundamental frequency



Date: 16.JUL.2024 11:02:59



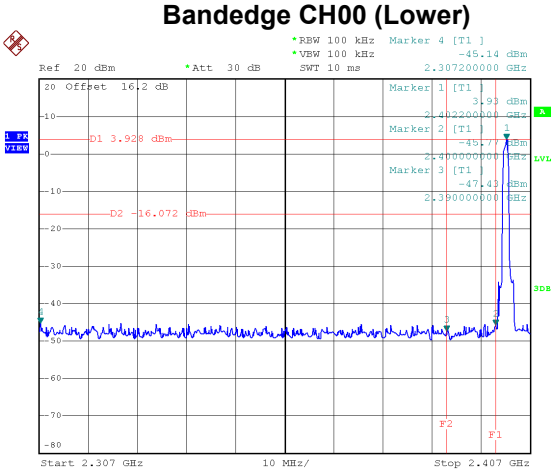
Date: 16.JUL.2024 11:03:08



Date: 16.JUL.2024 11:03:17

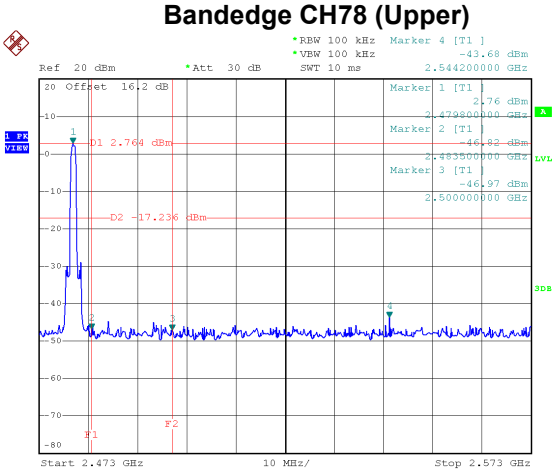
Test Mode	TX Mode _3Mbps

Bandedge CH00 (Lower)



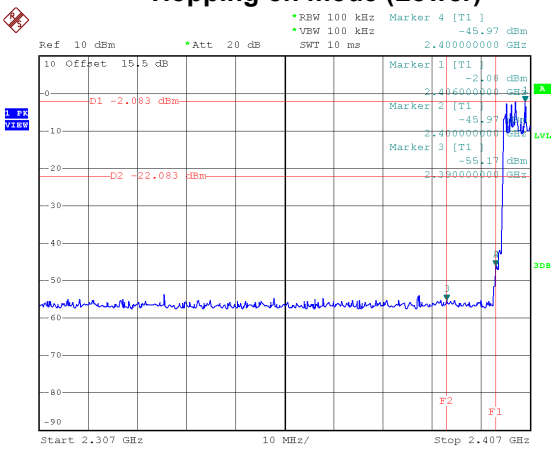
Date: 16.JUL.2024 11:23:41

Bandedge CH78 (Upper)



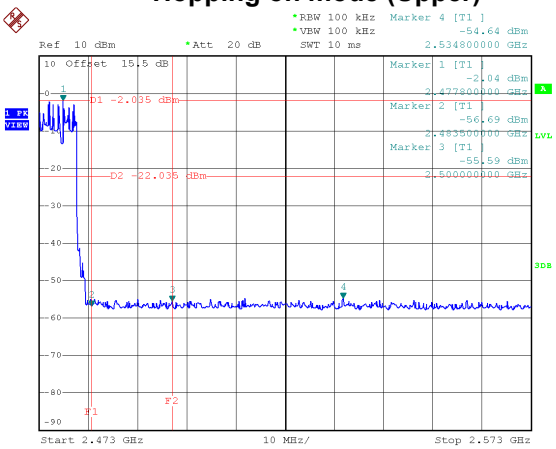
Date: 16.JUL.2024 11:31:42

Hopping on mode (Lower)



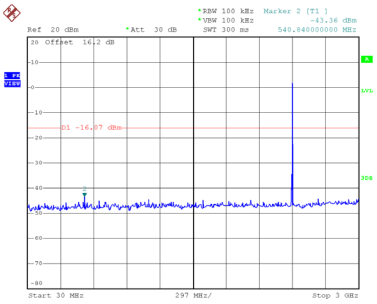
Date: 12.SEP.2024 10:37:57

Hopping on mode (Upper)

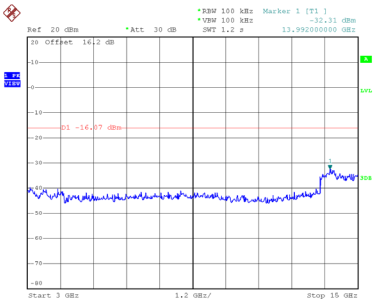


Date: 12.SEP.2024 10:38:32

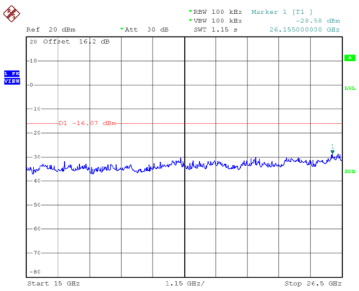
CH00 – 10th Harmonic of the fundamental frequency



Date: 16.JUL.2024 11:24:22

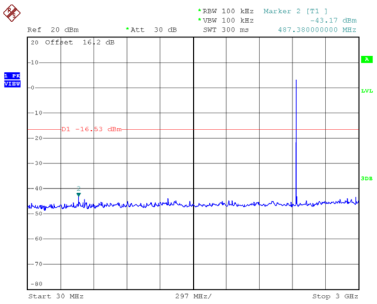


Date: 16.JUL.2024 11:24:31

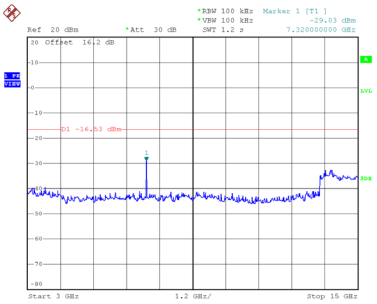


Date: 16.JUL.2024 11:24:39

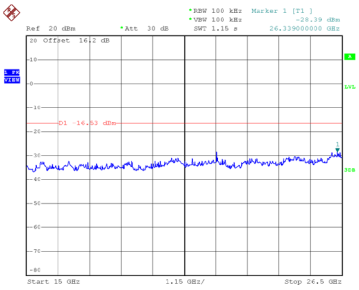
CH39 – 10th Harmonic of the fundamental frequency



Date: 16.JUL.2024 11:29:50

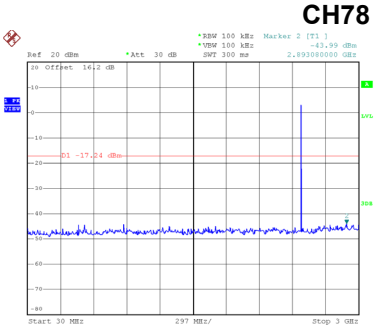


Date: 16.JUL.2024 11:29:59

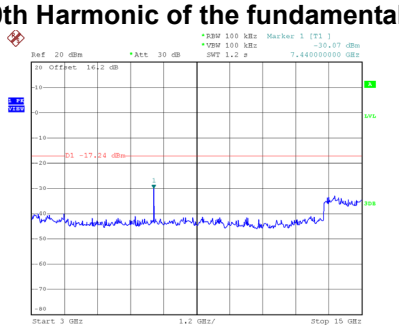


Date: 16.JUL.2024 11:30:07

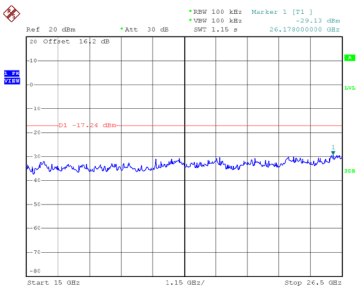
CH78 – 10th Harmonic of the fundamental frequency



Date: 16.JUL.2024 11:32:40



Date: 16.JUL.2024 11:33:16



Date: 16.JUL.2024 11:33:24

APPENDIX K - DECLARATION FOR BLUETOOTH DEVICE

1. Output power and channel separation of a Bluetooth device in the different operating modes:

The different operating modes (data-mode, acquisition-mode) of a Bluetooth device has no influence on the output power and the channel spacing. There is only one transmitter which is driven by identical input parameters concerning these two parameters.
Only a different hopping sequence will be used. For this reason the check of these RF parameters in one op-mode is sufficient.

2. Frequency range of a Bluetooth device:

Hereby we declare that the maximum frequency of this device is: 2402 - 2480MHz. This is according to the Bluetooth Core Specification (+ critical errata) for devices which will be operated in the USA.
This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/04-E). Other frequency ranges (e.g. for Spain, France, Japan) which are allowed according the Core Specification are not supported by this device.

3. Co-ordination of the hopping sequence in data mode to avoid simultaneous occupancy by multiple transmitters:

Bluetooth units which want to communicate with other units must be organised in a structure called piconet. This piconet consist of max. 8 Bluetooth units. One unit is the master the other seven are the slaves. The master co-ordinates frequency occupation in this piconet for all units. As the master hop sequence is derived from its BD address which is unique for each Bluetooth device, additional masters intending to establish new piconets will always use different hop sequences.

4. Example of a hopping sequence in data mode:

Example of a 79 hopping sequence in data mode:
40, 21, 44, 23, 42, 53, 46, 55, 48, 33, 52, 35, 50, 65, 54, 67, 56, 37, 60, 39, 58, 69, 62, 71, 64, 25, 68, 27, 66, 57, 70, 59, 72, 29, 76, 31, 74, 61, 78, 63, 01, 41, 05, 43, 03, 73, 07, 75, 09, 45, 13, 47, 11, 77, 15, 00, 64, 49, 66, 53, 68, 02, 70, 06, 01, 51, 03, 55, 05, 04

5. Equally average use of frequencies in data mode and behaviour for short transmissions:

The generation of the hopping sequence in connection mode depends essentially on two input values:
a) LAP/UAP of the master of the connection.
b) Internal master clock.

The LAP (lower address part) are the 24 LSB's of the 48 BD_ADDRESS. The BD_ADDRESS is an unambiguous number of every Bluetooth unit. The UAP (upper address part) are the 24 MSB's of the 48 BD_ADDRESS.

The internal clock of a Bluetooth unit is derived from a free running clock which is never adjusted and is never turned off. For synchronisation with other units only offset are used. It has no relation to the time of the day. Its resolution is at least half the RX/TX slot length of 312.5 µs. The clock has a cycle of about one day (23h30). In most case it is implemented as 28 bit counter. For the deriving of the hopping sequence the entire.
LAP (24 bits), 4 LSB's (4 bits) (Input 1) and the 27 MSB's of the clock (Input 2) are used. With this input values different mathematical procedures (permutations, additions, XOR- operations) are performed to generate the sequence. This will be done at the beginning of every new transmission.

Regarding short transmissions the Bluetooth system has the following behaviour:
The first connection between the two devices is established, a hopping sequence was generated. For transmitting the wanted data the complete hopping sequence was not used. The connection ended.
The second connection will be established. A new hopping sequence is generated. Due to the fact that the Bluetooth clock has a different value, because the period between the two transmission is longer (and it cannot be shorter) than the minimum resolution of the clock (312.5 µs). The hopping sequence will always differ from the first one.

6. Receiver input bandwidth and behaviour for repeated single or multiple packets:

The input bandwidth of the receiver is 1 MHz. In every connection one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence (see chapter 5). The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master.
Additionally the type of connection (e.g. single or multislot packet) is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings.
Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

End of Test Report