

Remote Implementation Example

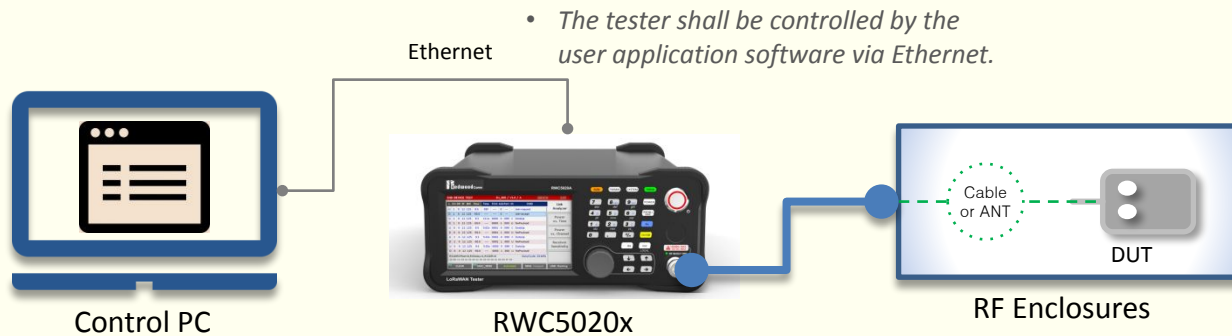
for RWC5020x FW V1.320 or higher

For Testing in Production Lines with “MFG” Function

RedwoodComm



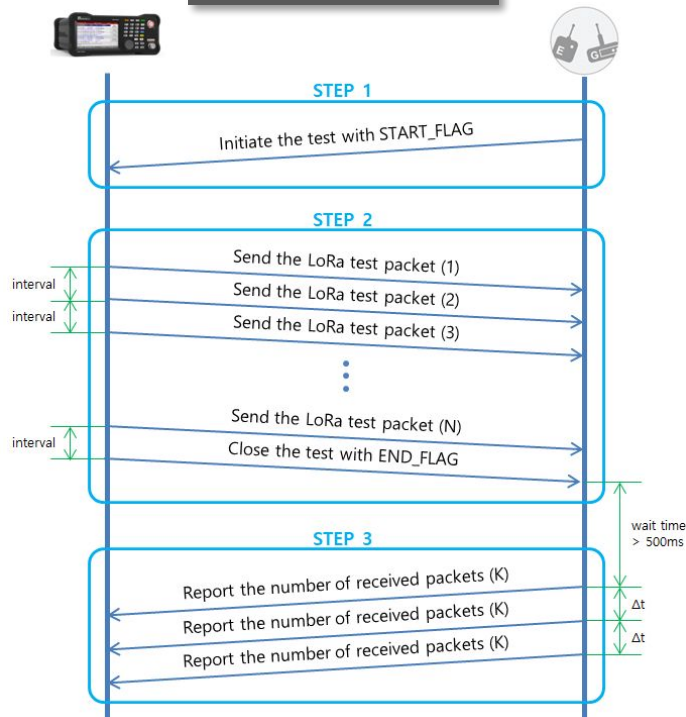
Test Setup Example for Production Lines



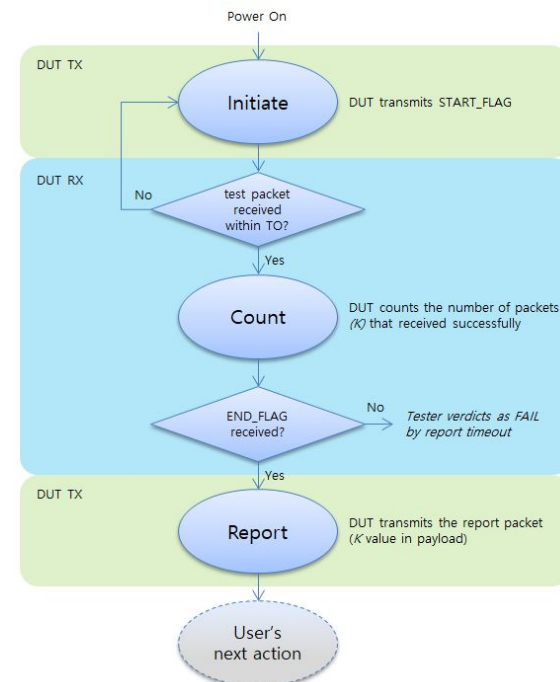
- The tester shall be controlled by the user application software via Ethernet.

- DUT's firmware needs to be modified to adopt the MFG test method.
- It is recommended the DUT is put into RF enclosure(s) to minimize the effect of interferences.
- Any available or efficient method can be adopted for RF connection; either radiated or conducted.

Test Procedure



State Transition Diagram



Initialization

CONFIGURATION - GENERAL

CONFIGURATION for TEST PARAMETERS

MFG Test

START MFG TEST

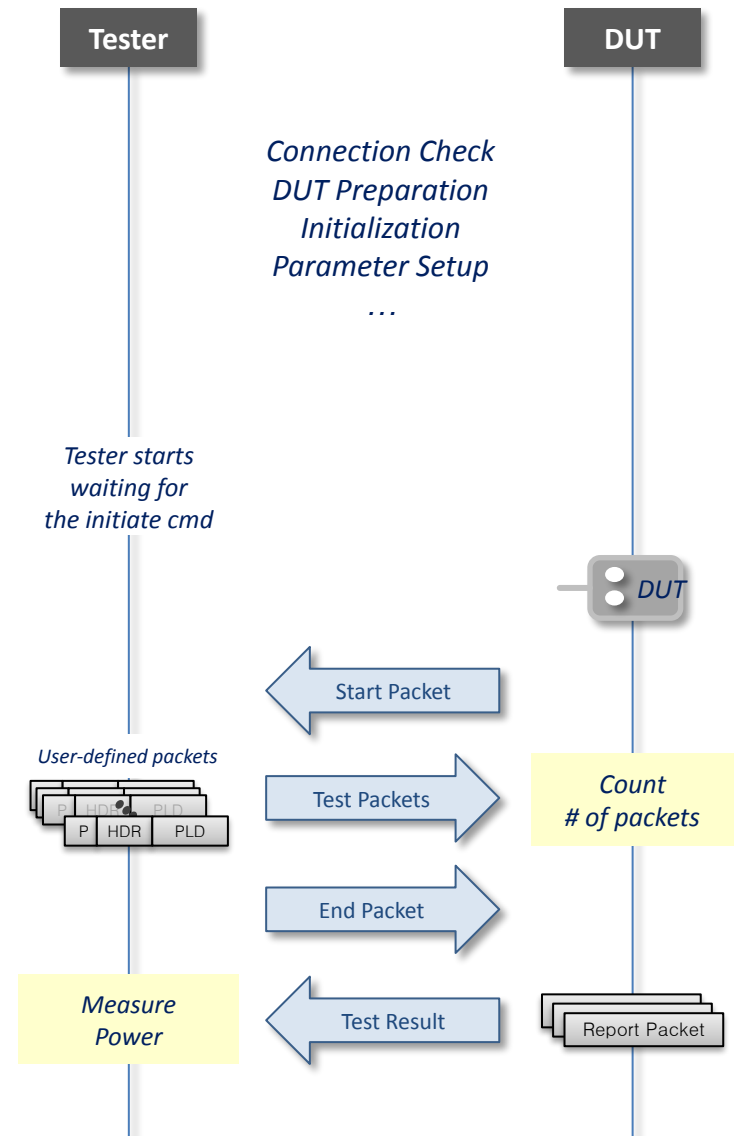
PREPARATION of DUT

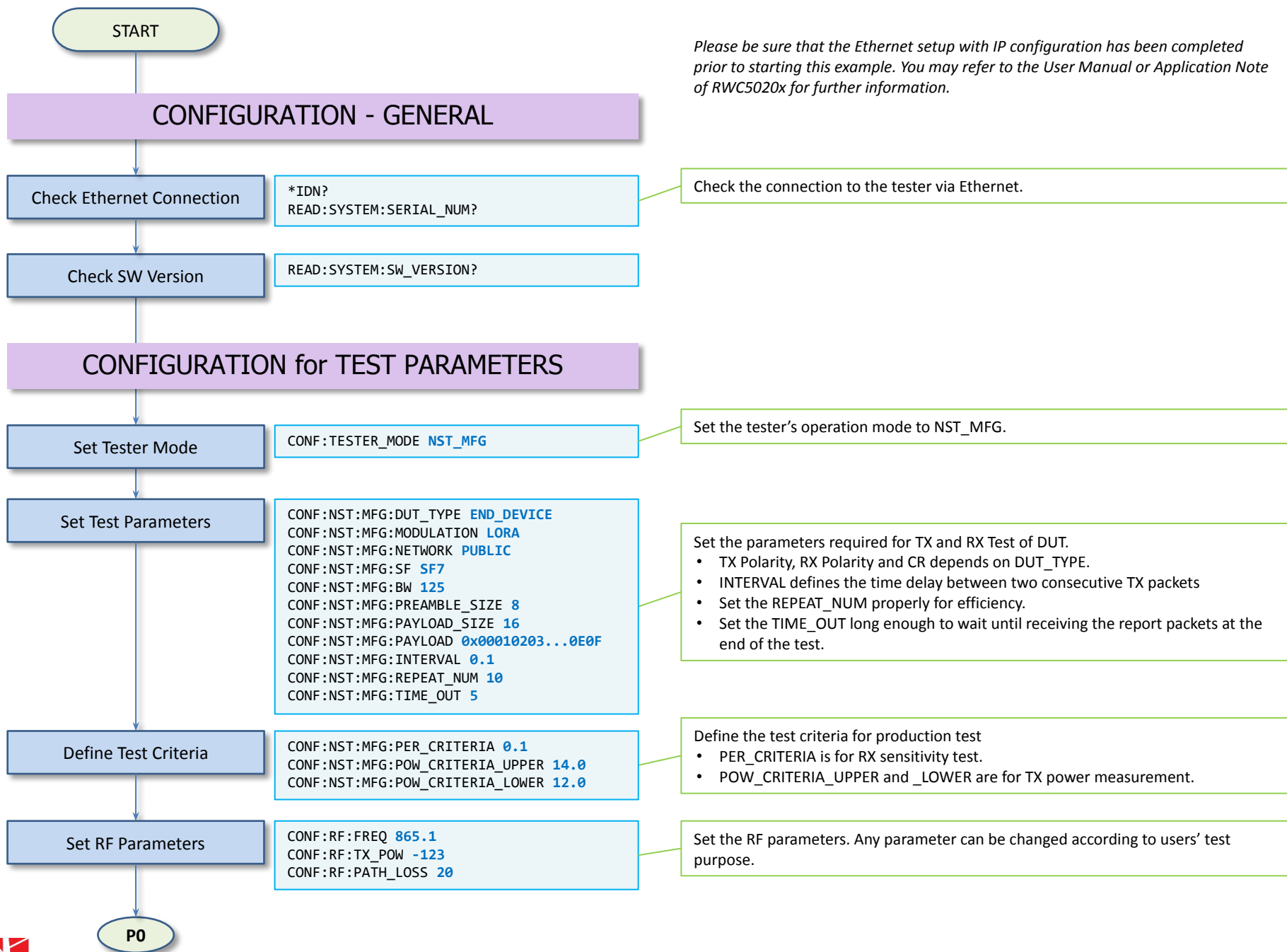
TEST INITIATION

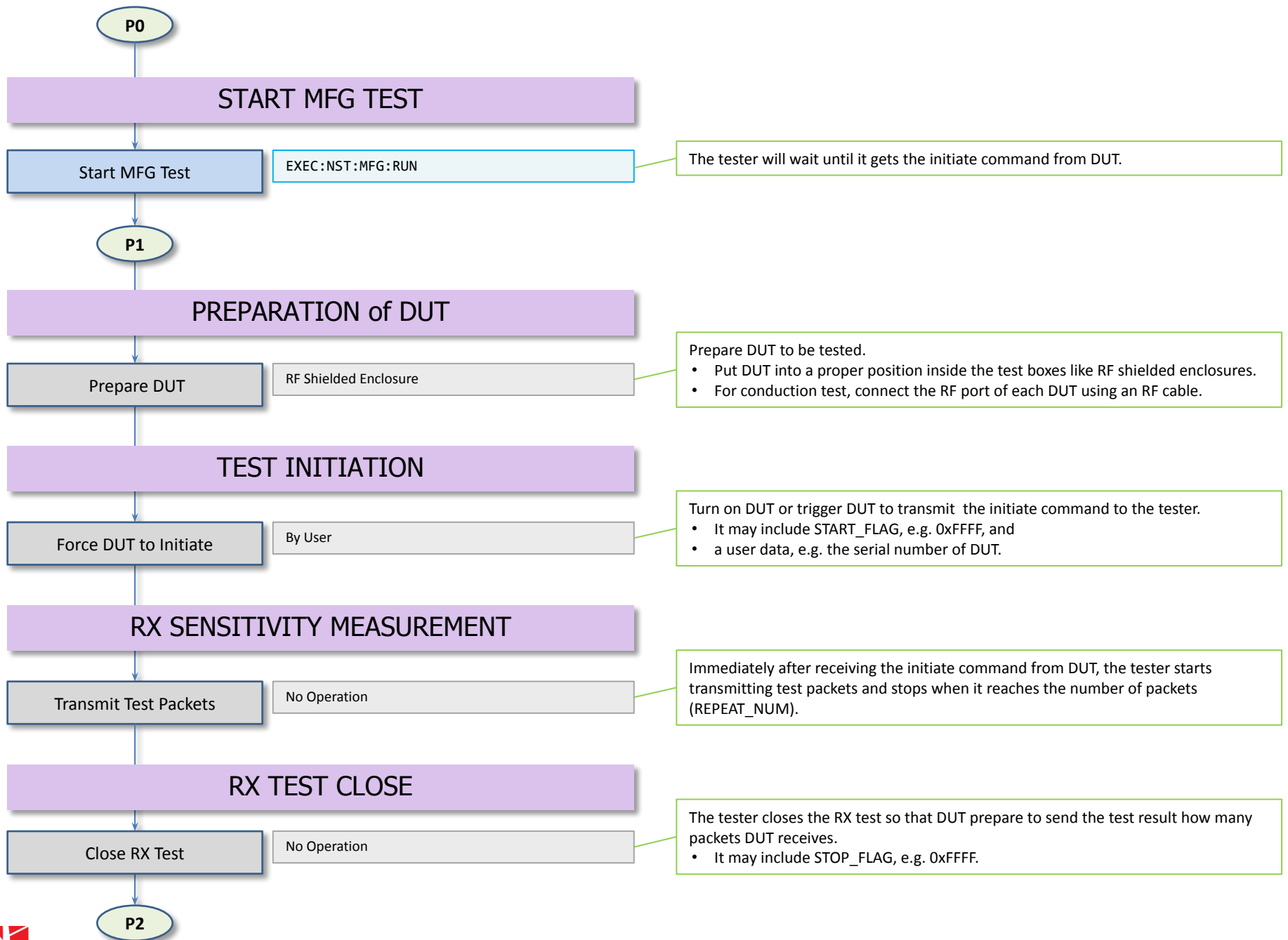
RX SENSITIVITY MEASUREMENT

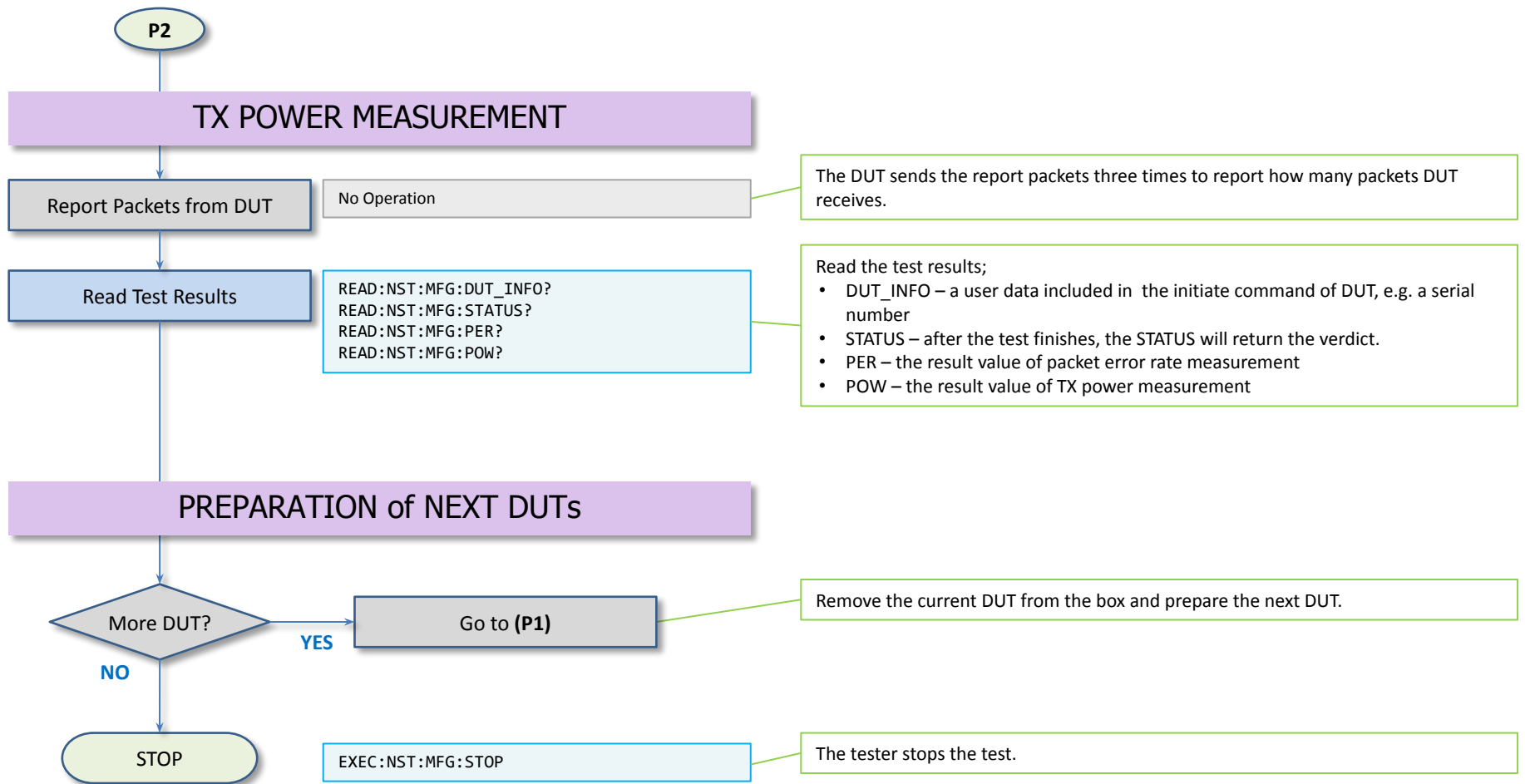
RX TEST CLOSE

TX POWER MEASUREMENT









Test Time Estimation

MFG TEST

Key Factors in RWC5020x

- Packet
 - SF SF7~SF12
 - PREAMBLE_SIZE 2~12 symbols
 - PAYLOAD_SIZE 0~250 bytes
- REPEAT_NUM 1~10000
- INTERVAL 0.01~1000 sec

Example :

SF7, PAYLOAD_SIZE=16, REPEAT_NUM=10, INTERVAL=0.01

$$\begin{aligned}
 t_{MFG} &\approx t_{Start} + t_{RX} + t_{End} + t_{Sw} + t_{TX} \\
 &\approx (0.051 + 0.01) + (0.051^* + 0.01) \times 10 + 0.051 + 0.5 + (0.051^* + 0.01) \times 3 \\
 &\approx 1.4 \text{ (sec)}
 \end{aligned}$$

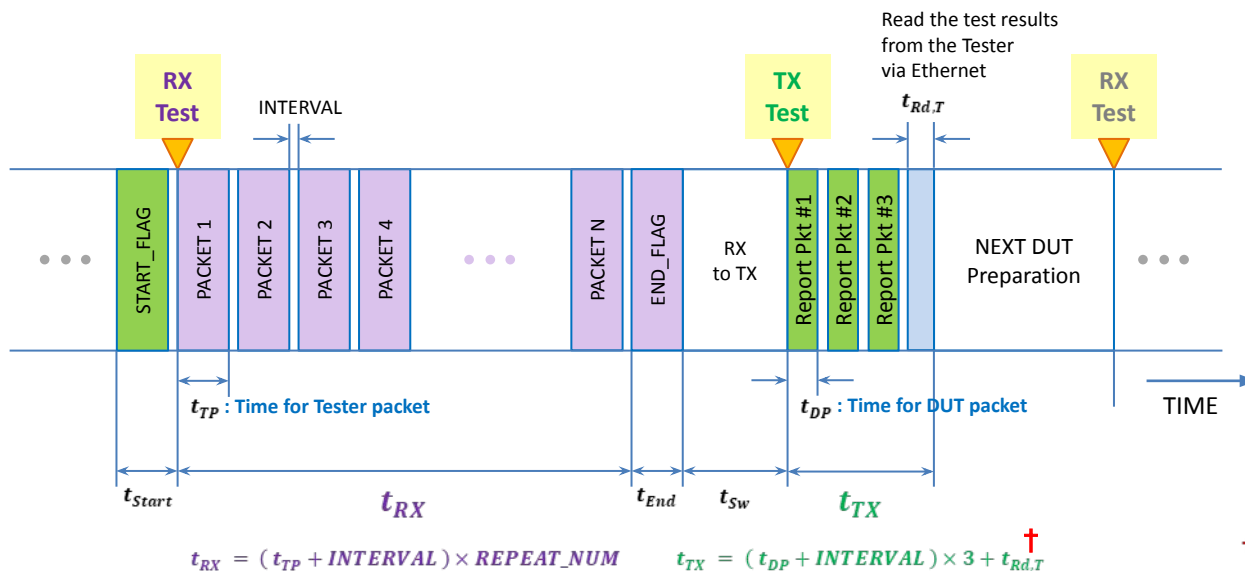
For making calculation simpler,
it is assumed that START_FLAG, STOP_FLAG,
and the Report Packets have the same length.

* Dependent on SF & size

Examples of Elapsed Test Time

[sec]

REPEAT_NUM	10	50	100	200
SF7	1.4	3.8	6.9	13.0
SF8	2.0	6.1	11.2	21.4
SF9	3.1	10.1	18.8	36.2
SF10	5.6	19.1	36.1	70.0
SF11	10.5	37.3	70.7	137.6
SF12	20.4	73.5	139.9	272.7



[†] The read time $t_{Rd,D}$ and $t_{Rd,T}$ are negligible.