HT MICRON semicondutores

NB-IoT Functional and Performance Report

3GPP and Qualcomm Based Tests

Classification:	Confidential
Doc. Type:	Report
Revision:	Rev. 02
Date:	09/02/2024
Code:	Tests, Report, Performance

Report Info

Operator:	Sergio
DUT:	HTNB32L-0XX
Batch:	NB2PT07-02-1
Testplan:	['Yield_Platform_for_Production_1.0.ini']
Plat SW Ver.:	Yield-Alpha 0.1
Plat HW Ver.:	1.0 ID1

Summary

Test Start Time:	09/02/2024 13:42:14
Test End Time:	09/02/2024 13:45:12
Total Test Time:	0:02:58
Test Items Passed:	124
Test Items Failed:	0
Number of Test Items:	124

Tests Resume

Test item	Qty	Set Lower	Set Upper	Res Lower	Res Mean	Res Upper	Unit	Judg
Short Open	13	8	340	9.8	214.4	330.0	kΩ	PASS
Firmware Flash	5	-	-	-	-	-	-	PASS
Interleaved	22	-	-	-	-	-	-	PASS
Peripherals	11	-	-	-	-	-	-	PASS
DeepSleep	4	0.4	25.0	0.8	5.8	13.0	µA	PASS
Calibration	4	-	-	-	-	-	-	PASS
Max_Output 00@00	5	21.0	24.2	21.1	21.8	22.5	dBm	PASS
Max_Output 03@00	5	19.8	22.3	20.7	21.4	21.8	dBm	PASS
EVM	10	-	17.5	0.3	1.8	4.7	%	PASS
Freq Error	10	-	195.0	0.35	4.7	9.01	Hz	PASS
OBW	10	-	200.0	141.56	155.4	168.75	Hz	PASS
ACLR	10	-	-36.2	-57.2	-55.0	-52.0	dBc	PASS
SEM	10	-	0.0	0.0	0.0	0.0	%	PASS
BLER	5	-	5.0	0.0	0.0	0.0	%	PASS

Tests Details #01

Test HT criteria - ShortOpen in Default configuration

Pin Name	Lower	Upper	Result	Unit	Judgement
VCC	8	340	9.8	kΩ	PASS
NRST	8	340	330.0	kΩ	PASS
BOOT	8	340	330.0	kΩ	PASS
UART1_TX	8	340	330.0	kΩ	PASS
UART1_RX	8	340	330.0	kΩ	PASS
USIM_VCC	8	340	39.7	kΩ	PASS
ESIM_VCC	8	340	55.4	kΩ	PASS
IO_1833_SEL	8	340	260.4	kΩ	PASS
USIM_IO	8	340	57.4	kΩ	PASS
ESIM_IO	8	340	330.0	kΩ	PASS
USIM_CLK	8	340	330.0	kΩ	PASS
ESIM_CLK	8	340	330.0	kΩ	PASS
SIM_NRST	8	340	55.0	kΩ	PASS

Tests Details #01

Test HT criteria - Firmware Flash in Default configuration

ID	Lower	Upper	Result	Unit	Judgement
Erase	-	-	PASS	-	PASS
Bootload	-	-	PASS	-	PASS
App Data	-	-	PASS	-	PASS
Merge RF Table 1	-	-	PASS	-	PASS
Merge RF Table 2	-	-	PASS	-	PASS

Tests Details #01

Test HT criteria - Interleaved in Default configuration

ID	Lower	Upper	Result	Unit	Judgement
GPIO2 [Int0]	0	-	0	-	PASS
GPIO3 [Int0]	0	-	0	-	PASS
GPIO5 [Int0]	0	-	0	-	PASS
SWD_CLK [Int0]	0	-	0	-	PASS
GPIO6 [Int0]	0	-	0	-	PASS
GPIO10 [Int0]	0	-	0	-	PASS
GPIO7 [Int0]	0	-	0	-	PASS
GPIO1 [Int0]	-	1	1	-	PASS
GPIO4 [Int0]	-	1	1	-	PASS
SWD_IO [Int0]	-	1	1	-	PASS
AON_GPIO [Int0]	-	1	1	-	PASS
GPIO2 [Int1]	-	1	1	-	PASS
GPIO3 [Int1]	-	1	1	-	PASS
GPIO5 [Int1]	-	1	1	-	PASS
SWD_CLK [Int1]	-	1	1	-	PASS
GPIO6 [Int1]	-	1	1	-	PASS
GPIO10 [Int1]	-	1	1	-	PASS
GPIO7 [Int1]	-	1	1	-	PASS
GPIO1 [Int1]	0	-	0	-	PASS
GPIO4 [Int1]	0	-	0	-	PASS
SWD_IO [Int1]	0	-	0	-	PASS
AON_GPIO [Int1]	0	-	0	-	PASS

Tests Details #01

Test HT criteria - Peripherals in Default configuration

ID	Lower	Upper	Result	Unit	Judgement
UART0 TX	-	-	PASS	-	PASS
UART0 RX	-	-	PASS	-	PASS
UART2 TX	-	-	PASS	-	PASS
UART2 RX	-	-	PASS	-	PASS
I2C0 TX	-	-	PASS	-	PASS
I2C0 RX	-	-	PASS	-	PASS
I2C1 TX	-	-	PASS	-	PASS
I2C1 RX	-	-	PASS	-	PASS
SPI1 TX	-	-	PASS	-	PASS
SPI1 RX	-	-	PASS	-	PASS
USIM	-	-	PASS	-	PASS

Tests Details #01

Test HT criteria - DeepSleep in Default configuration

Sleep Mode	Lower	Upper	Result	Unit	Judgement
HIB2	0.4	1.5	0.8	µA	PASS
HIB1	2.0	4.0	2.8	µA	PASS
SLEEP2	5.0	10.0	6.4	µA	PASS
SLEEP1	10.0	25.0	13.0	µA	PASS

Tests Details #01

Test Qualcomm criteria - Calibration in Default configuration

ID	Lower	Upper	Result	Unit	Judgement
AFC	-	-	PASS	-	PASS
AGC	-	-	PASS	-	PASS
APC	-	-	PASS	-	PASS
DPD	-	-	PASS	-	PASS

Tests Details #01

Test 6.2.2F - UE maximum output power in Default configuration

Band	Frequency	Test item	Lower	Upper	Result	Unit	Judgement
01	1950.0	00@00	21.0	24.2	21.2	dBm	PASS
01	1950.0	03@00	19.8	22.3	21.8	dBm	PASS
03	1747.5	00@00	21.0	24.2	21.1	dBm	PASS
03	1747.5	03@00	19.8	22.3	20.7	dBm	PASS
05	836.5	00@00	21.0	24.2	22.2	dBm	PASS
05	836.5	03@00	19.8	22.3	21.5	dBm	PASS
08	897.5	00@00	21.0	24.2	22.1	dBm	PASS
08	897.5	03@00	19.8	22.3	21.6	dBm	PASS
28	725.5	00@00	21.0	24.2	22.5	dBm	PASS
28	725.5	03@00	19.8	22.3	21.6	dBm	PASS

Tests Details #01

Test 6.5.2.1F.1 - Error vector magnitude (EVM) in Default configuration

Band	Frequency	Test item	Lower	Upper	Result	Unit	Judgement
01	1950.0	00@00	-	17.5	0.4	%	PASS
01	1950.0	03@00	-	17.5	3.7	%	PASS
03	1747.5	00@00	-	17.5	0.5	%	PASS
03	1747.5	03@00	-	17.5	3.1	%	PASS
05	836.5	00@00	-	17.5	0.3	%	PASS
05	836.5	03@00	-	17.5	2.4	%	PASS
08	897.5	00@00	-	17.5	0.4	%	PASS
08	897.5	03@00	-	17.5	1.8	%	PASS
28	725.5	00@00	-	17.5	0.4	%	PASS
28	725.5	03@00	-	17.5	4.7	%	PASS

Tests Details #01

Test 6.5.1F - Frequency Error in Default configuration

Band	Frequency	Test item	Lower	Upper	Result	Unit	Judgement
01	1950.0	00@00	-	195.0	5.61	Hz	PASS
01	1950.0	03@00	-	195.0	7.05	Hz	PASS
03	1747.5	00@00	-	174.75	4.23	Hz	PASS
03	1747.5	03@00	-	174.75	1.15	Hz	PASS
05	836.5	00@00	-	167.3	4.36	Hz	PASS
05	836.5	03@00	-	167.3	1.61	Hz	PASS
08	897.5	00@00	-	179.5	9.01	Hz	PASS
08	897.5	03@00	-	179.5	8.82	Hz	PASS
28	725.5	00@00	-	145.1	0.35	Hz	PASS
28	725.5	03@00	-	145.1	4.46	Hz	PASS

Tests Details #01

Test 6.6.1F - Occupied bandwidth (OBW) in Default configuration

Band	Frequency	Test item	Lower	Upper	Result	Unit	Judgement
01	1950.0	00@00	-	200.0	141.56	Hz	PASS
01	1950.0	03@00	-	200.0	168.75	Hz	PASS
03	1747.5	00@00	-	200.0	141.56	Hz	PASS
03	1747.5	03@00	-	200.0	168.75	Hz	PASS
05	836.5	00@00	-	200.0	141.56	Hz	PASS
05	836.5	03@00	-	200.0	168.75	Hz	PASS
08	897.5	00@00	-	200.0	141.56	Hz	PASS
08	897.5	03@00	-	200.0	168.75	Hz	PASS
28	725.5	00@00	-	200.0	144.38	Hz	PASS
28	725.5	03@00	-	200.0	168.75	Hz	PASS

Tests Details #01

Test 6.6.2.3F - ACLR in Default configuration

Band	Frequency	Test item	Lower	Upper	Result	Unit	Judgement
01	1950.0	00@00	-	-36.2	-54.3	dBc	PASS
01	1950.0	03@00	-	-36.2	-54.2	dBc	PASS
03	1747.5	00@00	-	-36.2	-54.2	dBc	PASS
03	1747.5	03@00	-	-36.2	-52.0	dBc	PASS
05	836.5	00@00	-	-36.2	-56.4	dBc	PASS
05	836.5	03@00	-	-36.2	-54.7	dBc	PASS
08	897.5	00@00	-	-36.2	-56.4	dBc	PASS
08	897.5	03@00	-	-36.2	-55.5	dBc	PASS
28	725.5	00@00	-	-36.2	-57.2	dBc	PASS
28	725.5	03@00	-	-36.2	-55.1	dBc	PASS

Tests Details #01

Test 6.6.2.1F - Spectrum Emission Mask (SEM) in Default configuration

Band	Frequency	Test item	Lower	Upper	Result	Unit	Judgement
01	1950.0	00@00	-	0.0	0.0	%	PASS
01	1950.0	03@00	-	0.0	0.0	%	PASS
03	1747.5	00@00	-	0.0	0.0	%	PASS
03	1747.5	03@00	-	0.0	0.0	%	PASS
05	836.5	00@00	-	0.0	0.0	%	PASS
05	836.5	03@00	-	0.0	0.0	%	PASS
08	897.5	00@00	-	0.0	0.0	%	PASS
08	897.5	03@00	-	0.0	0.0	%	PASS
28	725.5	00@00	-	0.0	0.0	%	PASS
28	725.5	03@00	-	0.0	0.0	%	PASS

Tests Details #01

Test HT criteria - BLER in Default configuration

Band	DlChannel	CellLevel	Lower	Upper	Result	Unit	Judgement
01	300	-100	-	5.0	0.0	%	PASS
03	1400	-100	-	5.0	0.0	%	PASS
05	2525	-100	-	5.0	0.0	%	PASS
08	3625	-100	-	5.0	0.0	%	PASS
28	9435	-100	-	5.0	0.0	%	PASS