

A Test Lab Techno Corp.

Changan Lab : No. 140 -1, Changan Street, Bade City, Taoyuan County, Taiwan R.O.C. Tel : 886-3-271-0188 / Fax : 886-3-271-0190

MPF Report



Test Report No.	: 1504FS13	
Applicant	: Tecom Co Ltd	
Manufacturer	: Tecom Co Ltd	
Product Type	: G.hn PLC	
Trade Name	: TECOM, MOCET, N/A	
Model Number	: HD3010-US	
Date of Received	: Feb. 25, 2015	
Test Period	: Mar. 19 ~ Mar. 24, 2015	
Date of Issued	: Apr. 30, 2015	
Test Specification	: 47 CFR § 2.1091	
	47 CFR §1.1310	
	ANSI / IEEE Std.C95.1-1992	
Location of Test Lab.	: Chang-an Lab.	

1. The test operations have to be performed with cautious behavior, the test results are as attached.

2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.

3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full. This report shall not be reproduced except in full, without the written approval of A Test Lab Techno Corp.

4. This document may be altered or revised by A Test Lab Techno. Corp. personnel only, and shall be noted in the revision section of the document.

Approved By

Tested By (Bill Hu)



Contents

1.	Description of Equipment under Test (EUT)	3
2.	Human Exposure Assessment	4
3.	RF Output Power	5
4.	Test Result	6



1. Description of Equipment under Test (EUT)

Applicant	Tecom Co Ltd
Applicant Address	23, R&D Road 2 Science Based Ind Park, Hsin-Chu Taiwan
Manufacturer	Tecom Co Ltd
Manufacturer Address	23, R&D Road 2 Science Based Ind Park, Hsin-Chu Taiwan
Product Type	G.hn PLC
Trade Name	TECOM, MOCET, N/A
Model Number	HD3010-US
FCC ID	D6XHD3010
Frequency Range	IEEE 802.11b / 802.11g / 802.11n 2.4GHz (20MHz): 2412 ~ 2462 MHz
	IEEE 802.11n 2.4GHz (40MHz): 2422 ~ 2452 MHz
Transmit Power	IEEE 802.11b: 0.018 W / 12.61 dBm
(conducted power)	IEEE 802.11g: 0.035 W / 15.42 dBm
	IEEE 802.11n 2.4GHz (20MHz): 0.035 W / 15.47 dBm
	IEEE 802.11n 2.4GHz (40MHz): 0.029 W / 14.60 dBm
Antenna Specification	IEEE 802.11b, IEEE 802.11g: 2 dBi
	IEEE 802.11n 2.4GHz Standard-20MHz / Wide-40MHz: 2 dBi
Antenna Designation	LTCC Chip Antenna
Temperature Range	0 ~ 40°C
RF Evaluation	0.13 W/m ²

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1091 & 47 CFR § 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties



2. Human Exposure Assessment

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR §1.1310 titled "Radiofrequency radiation exposure limits", generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as "a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. " This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product,

Client has made the following statement: "IMPORTANT: To meet the FCC's RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna". Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a "mobile device" as defined in section § 2.1091 paragraph (b).





3. RF Output Power

Band	Date Rate	СН	Frequency (MHz)	Average Conducted power (dBm)			
		ANT-1 ANT-2 1 2412.0 12.40 12.17		ANT-2	ANT-1+2		
		1	2412.0	12.40	12.17		
	1M	6	2437.0	12.56	12.33		
IEEE 902 11b		11	2462.0	12.61	12.38		
	2M	6	2437.0	12.41	12.18		
	5.5M	6	2437.0	12.34	12.11		
	11M	6	2437.0	12.19	11.96		
		1	2412.0	15.42	15.19		
	6M	6	2437.0	15.18	14.95		
IEEE 802.11g		11	2462.0	14.83	14.60		
	9M	6	2437.0	15.02	14.79		
	12M	6	2437.0	15.00	14.77		
	18M	6	2437.0	14.95	14.72		
	24M	6	2437.0	14.97	14.74		
	36M	6	2437.0	14.98	14.75		
	48M	6	2437.0	14.94	14.71		
	54M	6	2437.0	14.92	14.69		
	13M	1	2412.0	12.27	12.64	15.47	
		6	2437.0	12.19	12.43	15.32	
IEEE 802.11n 2.4GHz 20MHz (MIMO)		11	2462.0	12.16	12.36	15.27	
	26M	6	2437.0	12.06	12.28	15.18	
	39M	6	2437.0	12.04	12.26	15.16	
	52M	6	2437.0	12.01	12.23	15.13	
	78M	6	2437.0	11.99	12.21	15.11	
	104M	6	2437.0	11.92	12.14	15.04	
	117M	6	2437.0	11.89	12.11	15.01	
	130M	6	2437.0	11.95	12.17	15.07	
		3	2422.0	11.41	11.77	14.60	
	27M	6	2437.0	11.36	11.51	14.45	
		9	2452.0	11.32	11.45	14.40	
IEEE 802.11n	54M	6	2437.0	11.20	11.33	14.28	
2.4GHz	81M	6	2437.0	11.24	11.37	14.32	
40MHz (MIMO)	108M	6	2437.0	11.14	11.27	14.22	
	162M	6	2437.0	11.08	11.21	14.16	
	216M	6	2437.0	11.16	11.29	14.24	
	243M	6	2437.0	11.17	11.30	14.25	
	270M	6	2437.0	11.13	11.26	14.21	



4. Test Result

Band	Data Rate	Frequency (MHz)	Limit (mw/cm ²)	Distance (cm) [R]	Max Tune-up power (dBm) [P]	ANT Gain (dBi)	Numeric Gain [G] (dBi)	Duty Cycle	[P] x [G] With Duty Cycle (mW) [TP]	Power Density [S] (mw/cm ²)
IEEE 802.11b	1 M	2412	1.000	20	13	2	1.58	1	31.53	0.006
		2437	1.000	20	13	2	1.58	1	31.53	0.006
		2462	1.000	20	13	2	1.58	1	31.53	0.006
IEEE 802.11g	6 M	2412	1.000	20	16	2	1.58	1	62.90	0.013
		2437	1.000	20	16	2	1.58	1	62.90	0.013
		2462	1.000	20	16	2	1.58	1	62.90	0.013
IEEE 802.11n 2.4GHz 20MHz (MIMO)	13 M	2412	1.000	20	16	2	1.58	1	62.90	0.013
		2437	1.000	20	16	2	1.58	1	62.90	0.013
		2462	1.000	20	16	2	1.58	1	62.90	0.013
IEEE 802.11n 2.4GHz 40MHz (MIMO)	27 M	2422	1.000	20	15	2	1.58	1	49.96	0.010
		2437	1.000	20	15	2	1.58	1	49.96	0.010
		2452	1.000	20	15	2	1.58	1	49.96	0.010