



A Test Lab Techno Corp.

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MPE Report



Test Report No.	: 1005FS11-01
Applicant	: XAC Automation Corporation
Manufacturer	: XAC Automation Corporation
Model Name	: Portable Terminal
Trade Mark	: FDC
Model Number	: FD-400 , FD-400(MC8790) , FD-400Ti
FCC ID	: MQT-FD400TI
Dates of Test	: Nov. 30, 2009
Test Specification	: 47 CFR § 2.1091 47 CFR §1.1310 ANSI / IEEE Std.C95.1-2005 KDB 447498 D01 Mobile Portable RF Exposure v04
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.
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Approve Signer


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Testing Engineer



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1. Description of Equipment under Test (EUT)

Applicant :	XAC Automation Corporation
Applicant Address :	4F., NO.30, INDUSTRY E. RD. IX, SCIENCE-BASED INDUSTRIAL PARK., HSIN-CHU,Taiwan, R.O.C
Manufacturer :	XAC Automation Corporation
Manufacturer Address :	4F., NO.30, INDUSTRY E. RD. IX, SCIENCE-BASED INDUSTRIAL PARK., HSIN-CHU,Taiwan, R.O.C
Product Name :	Portable Terminal
Trade Name :	FDC
Model Number :	FD-400 , FD-400(MC8790) , FD-400Ti
FCC ID :	MQT-FD400TI
Frequency Range :	GSM 850 / EGPR 850 : 824.2 ~ 848.8 MHz PCS 1900 / EGPRS 1900 : 1850.2 ~ 1909.8 MHz WCDMA Band II / HSDPA Band IIV : 1850.4 ~ 1907.6 MHz WCDMA Band V / HSDPA Band V : 826.4 ~ 846.6 MHz
Transmit Power : (mean conducted power)	GSM 850 : 1.445 W EGPR 850 : 0.296 W PCS 1900 : 0.832 W EGPRS 1900 : 0.235 W WCDMA Band II : 0.380 W HSDPA Band II : 0.363 W WCDMA Band V : 0.417 W HSDPA Band V : 0.333 W
Hardware Version :	C01
Software Version :	00431214
Modulation Technique :	GSM 850 / EGPR 850: GMSK/8PSK PCS 1900 / EGPR 1900: GMSK/8PSK WCDMA Band II / HSDPA Band II: QPSK WCDMA Band V / HSDPA Band V: QPSK
Antenna Specification :	GSM 850: 2.7 dBi PCS 1900: 1.3 dBi WCDMA Band II: 1.3 dBi WCDMA Band V: 2.7 dBi
Antenna Designation :	Internal Antenna
Temperature Range :	-30 ~ +70°C

The above equipment was tested by Compliance Certification Services Inc. 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. Extremity and body SAR evaluation considerations

According to KDB 447498 D01 Mobile Portable RF Exposure v04 4) C) iii) 1)

Hand SAR is required for hand-held and hand-operated devices with output power $> 1000 \cdot [f(\text{GHz})]^{-0.5}$ mW that are designed with the hand operating closer than 5 cm from the antenna during normal use.²⁵

	Frequency (MHz)	Power (dBm)	Limit (mw)	Time Avg Power
GPRS 850 (3Down 2Up)	824.2	31.60	1101.5	344.2
	836.6	31.50	1093.3	336.3
	848.8	31.50	1085.4	336.3
GPRS 1900 (3Down 2Up)	1850.2	29.20	735.2	198.0
	1880.0	29.00	729.3	189.1
	1909.8	28.90	723.6	184.8
WCDMA Band V	826.4	26.20	1100.0	416.9
	836.4	26.10	1093.4	407.4
	846.4	26.00	1087.0	398.1
WCDMA Band II	1852.4	25.80	734.7	416.9
	1880.0	25.80	729.3	407.4
	1909.7	25.60	723.6	398.1
HSDPA Band V Sub-Test 1	826.4	25.01	1100.0	317.0
	836.4	25.22	1093.4	332.7
	846.4	25.03	1087.0	318.4
HSDPA Band II Sub-Test 1	1852.4	24.96	734.7	416.9
	1880.0	25.60	729.3	407.4
	1909.7	25.50	723.6	398.1



3. 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).

Exposure evaluation

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna.



3.1 Test Result

GPRS 850 (3Down2Up)

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density [S]	Min. distance (cm)
824.2	0.549	20	31.60	2.7	2.692	0.268	20cm
836.6	0.558	20	31.50	2.7	2.630	0.262	20cm
848.8	0.566	20	31.50	2.7	2.630	0.262	20cm

GPRS 1900 (3Down2Up)

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density [S]	Min. distance (cm)
1850.2	1.000	20	29.20	1.3	1.122	0.112	20cm
1880.0	1.000	20	29.00	1.3	1.072	0.107	20cm
1909.8	1.000	20	28.90	1.3	1.047	0.104	20cm

EGPRS 850 (3Down2Up)

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density [S]	Min. distance (cm)
824.2	0.549	20	24.12	2.7	0.481	0.048	20cm
836.6	0.558	20	24.04	2.7	0.472	0.047	20cm
848.8	0.566	20	24.72	2.7	0.552	0.055	20cm

EGPRS 1900 (3Down2Up)

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density [S]	Min. distance (cm)
1850.2	1.000	20	23.15	1.3	0.279	0.028	20cm
1880.0	1.000	20	23.23	1.3	0.284	0.028	20cm
1909.8	1.000	20	23.71	1.3	0.317	0.032	20cm



WCDMA Band II

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density [S]	Min. distance (cm)
1852.4	1.000	20	25.80	1.3	0.513	0.102	20cm
1880.0	1.000	20	25.80	1.3	0.513	0.102	20cm
1909.7	1.000	20	25.60	1.3	0.490	0.097	20cm

WCDMA Band V

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density [S]	Min. distance (cm)
826.4	0.551	20	26.20	2.7	0.776	0.155	20cm
836.4	0.558	20	26.10	2.7	0.759	0.151	20cm
846.4	0.564	20	26.00	2.7	0.741	0.148	20cm

HSDPA Band II Sub-Test 1

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density [S]	Min. distance (cm)
1852.4	1.000	20	24.96	1.3	0.423	0.084	20cm
1880.0	1.000	20	25.60	1.3	0.490	0.097	20cm
1909.7	1.000	20	25.50	1.3	0.479	0.095	20cm

HSDPA Band V Sub-Test 1

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density [S]	Min. distance (cm)
826.4	0.551	20	25.01	2.7	0.590	0.117	20cm
836.4	0.558	20	25.22	2.7	0.619	0.123	20cm
846.4	0.564	20	25.03	2.7	0.593	0.118	20cm