

Mike Kuo

From: Kwon, James (Gunpo) [James.Kwon@sgs.com]
Sent: Wednesday, October 18, 2006 5:37 AM
To: Mike Kuo
Cc: Ham, Denny (Gunpo); Jeong, Feel (Gunpo); gsbahn@cmotech.com; mayby@cmotech.com; Ryu, Erwin (Gunpo)
Subject: RE: C-motech Co., Ltd., FCC ID: TARCDU-650, Assessment NO.: AN06T6194, Notice#1

Hi Mike,

Regarding your findings, pls find our reply embedded at below .

There are 2 items to be revised on 731 form, pls change at your side :

- 1) emission designator : 1M28F9W ---> 1M43F9W
- 2) **Transmit Power to be revised :** CDMA : ERP 21.90 dBm (0.155 W)
US PCS :EIRP 21.84 dBm (0.153 W)

James/SGS

-----Original Message-----
From: Mike Kuo
Sent: Sunday, October 08, 2006 5:10 PM
To: Mike Kuo
Subject: C-motech Co., Ltd., FCC ID: TARCDU-650, Assessment NO.: AN06T6194, Notice#1

Administrative Review portion:

Question #1:Please update theory of operation to provide the following radio capabilities : -> Updated and uploaded it.

A. What is MS protocol revision number that this device is supporting

-> IS-2000 & IS-856 (1xRTT & EVDO Revision 0)

B.What is revision number of 1xEVDO that this device is capable of

-> 1xEVDO Revision 0 (No 1xEVDO RevisionA)

C.This radio is design per which version of 3GPP standard.

-> IS98E & IS-856-2

D. Please list the Radio configuration (RC) and Service option (SO) that this device is capable of

-> See below table (As you know, similar to Question11.A)

Radio Configurations			
Radio	Programming	C.S0002-A Standard	
			Test Mode in

Config	Mnemonic	Forward Traffic Channel Radio Configuration	Reverse Traffic Channel Radio Configuration	TIA/EIA-98-E
(Fwd1, Rvs1)	F1R1	RC1	RC1	1
(Fwd2, Rvs2)	F2R2	RC2	RC2	2
(Fwd3, Rvs3)	F3R3	RC3	RC3	3
(Fwd4, Rvs3)	F4R3	RC4	RC3	4
(Fwd5, Rvs4)	F5R4	RC5	RC4	5
The traffic channel may consist of one or more code channels such as fundamental channel, supplemental channel.				

Radio Configuration can be changed at any time, but is not applicable till next connection if having connected.

Service Options

Service Option Setup	Description	IS-95 System	IS-2000 System				
			(Fwd1, Rvs1)	(Fwd2, Rvs2)	(Fwd3, Rvs3)	(Fwd4, Rvs3)	(Fwd5, Rvs4)
SO1 (Voice)	Basic Variable Rate Voice Service (8 kbps)	x	x		x	x	
SO2 (Loopback)	Mobile Station Loopback (8 kbps)	x	x		x	x	
SO3 (Voice)	Enhanced Variable Rate Voice Service (8 kbps)	x	x		x	x	
SO6 (SMS)	Short Message Services (Rate Set 1)	x	x		x	x	
SO9 (Loopback)	Mobile Station Loopback (13 kbps)	x		x			x
SO14 (SMS)	Short Message Services (Rate Set 2)	x		x			x
SO17 (Voice)	High Rate Voice Service (13 kbps)	x		x			x
SO32 (+F-SCH) *	Test Data Service Option (TDSO)				x	x	
SO32 (+SCH) *	Test Data Service Option (TDSO)				x	x	
SO33 *	cdma2000 High Speed Packet Data Service, Internet or ISO Protocol Stack				x	x	x
SO33 (+F-SCH) *	cdma2000 High Speed Packet Data Service,						

SCH) *	Internet or ISO Protocol Stack				x	x	
SO55 (Loopback)	Loopback Service Option (LSO)		x	x	x	x	x
SO32768 (Voice)	Proprietary Service Option (Qualcomm Inc.)	x		x			x
* The service option is only applicable in Lab Application.							

Question #2: In page 6 of user manual, it indicates that this device has option to have rod antenna, extended antenna and internal type of antenna. However, in the antenna specification, Telescopic and Helical antenna specification were provided.

Are telescopic and Helical antennas transmitting antennas ? How these two antennas will be functioned during the normal operation ?

Please provide internal antenna specification (as mentioned in the user manual). (또는 매뉴얼 내용이 틀리면 매뉴얼을 수정하면 됩니다)

-> Rod type antenna is also so called "Telescopic antenna ", they are same meaning. The Antenna type of internal antenna is a Helical type. So the antenna specification has 2 antenna specs.

Telescopic antenna(=Rod antenna) is used for transmitting, and internal antenna(Helical type) is used for receiving only which is for Receiver diversity purpose.

Extended antenna is meaningless one, so we deleted it from the manual. Updated manual is uploaded.

Question #3: In the regulatory information attachment, it mentioned CDMA modem organizer and indicates that this data modem can only be used with CDMA modem organizer. Please explain this requirement.

-> This is mis-translation. Corrected and uploaded.

Question #4: Please provide tune up procedure.

-> Uploaded.

Question #5 : In the revised request for confidentiality letter, technical specification (user manual) is one of requested item for ong term confidential. Per FCC policy, user manual can only be granted as short term confidential document. In this technical specification (user manual) also contain block diagram which is requested for long term confidential as well. Please :

- A. revise request for confidentiality letter by removing user manual from the request.
- B. remove block diagram from user manual
- C. Make sure revised user manual does not contain sensitive information.
(James: 이 부분은 매뉴얼을 수정할 것입니다.)

-> confidentiality letter and user manual are revised accordingly, and uploaded.

EMC portion :

Question #6: Part 24 PCS band shall be identified as PCS 1900 band. Do not use PCS 1800 which may be confused with EU band. Please make necessary changes in the test report.

-> Updated test report accordingly, and uploaded.

Question #7: The test report indicates the transmitting frequency range for PCS band is from 1851.25 – 1988.75 MHz which is outside the licensing band of 1850 – 1910 MHz. Please explain .

-> Typo error. 1851.25 ~ 1908.75 MHz is correct. Updated test report accordingly.

Question #8: Fundamental ERP/EIRP measurement: section 3 of test report is related to fundamental ERP/EIRP measurement. FCC only recognize TIA /EIA 603 rev. B as the published measurement procedures. The procedure indicated in section 3 does not comply this measurement procedure. Please explain or justify why the procedures used in section 3 can comply with EIA/TIA 603 procedures. If justification can not be made, please redo ERP/EIRP measurement and submit the test data with detail procedure used.

-> We redo all measurement upon your comment accordingly, and updated test report.

Question #9 Section 4 of test report, please provide formula to show the calculation from the measurement data with associated factors to the corrected readings.

-> We inserted the fomular to test report.

Question #10 : Please provide justification/ data to support the emission designator is 1M28F9W (page 3 section 1–3 of test report). Since you have provided the 99% BW measurement, necessary bandwidth can be the widest bandwidth of 99% BW.

-> So 1M43F9W is correct. We updated test report.

3G review policy :

Question #11 : Through out the test report, there is no information provided which Radio Configuration (RC) and Service Option (SO) were used for each of measurement. In addition, there is no information on what are the preliminary tests performed to determine the worst case. Please :

A. Please measure Conducted output PEAK and AVERAGE power at CDMA 800 (Ch 383) and CDMA 1900 (CH 600) with the following RC/SO combination:

RC1, SO2, Full Rate
RC1, SO32, Full Rate
RC1, SO55, Full Rate
RC2, SO9, Full Rate
RC2, SO32 Full Rate
RC2, SO55, Full Rate
RC3, SO2, Full Rate
RC3, SO55, Full Rate
RC4, SO2, Full Rate
RC4, SO32, Full Rate
RC4, SO55, Full Rate

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RC5, SO9, Full Rate
RC5, SO32, Full Rate
RC5, SO55, Full Rate
RC3, SO32, (+ F-SCH) Full Rate
RC3, SO32, (+ SCH) Full Rate

Based upon the highest PEAK output power, you need to perform your Fundamental ERP/EIRP, RF conducted spurious and Radiated spurious on the highest peak RC/SO.

-> We redo all necessary measurement accordingly, and updated test report.

B.You also need to perform 26dB BW measurement on above RC/SO combination during preliminary tests to select what is the widest 26dB BW to be used for RF conducted bandedge tests.

-> We redo all necessary measurement accordingly, and updated test report.

C.Once the worst mode of configuration is determined (RC/SO), please provide detail setting used as displayed on the communication set to make sure the air link setting between EUT and base station simulator is correct.

-> We captured test mode and inserted it to test report.

SAR portion :

Question #12: The output power measured in page 14 and page 15, are they average output power or peak output power. Per FCC 3 G SAR review policy, while determine the worse RC/SO test modes, it is AVERAGE output power shall be based upon to determine the worse mode.

-> They were average output power. we changed the word (maximum -> average) in test report.

Question #13: Please provide detail setting of RC5/SO55 and 1xEVDO as displayed on the communication set or you may provide a screen shots.

-> We captured test mode and inserted it to test report.

Question #14: Bottom and Vertical positions used during SAR evaluation: Please explain why these positions are considered as normal operational position. Top position is to simulate the lap held operation, what is bottom/vertical positions tried to simulate ?

-> We proceeded SAR test with various antenna position. You can find each position from the photos in SAR test report.

Question #15 : This USB CDMA modem has been investigated with three typical lap top computers. However, all three laptop computers are equipped with horizontal USB connector. Per FCC policy, when investigating USB dongle with integral antenna, SAR evaluation should be included with vertical USB connector on some of lap top computer. Please evaluate this device with one of laptop computer with vertical USB slots.

-> When re-testing, we used two notebook with horizontal USB connector and 1 notebook with vertical USB connector. Refer to

test report updated.

Question #16: This device is equipped with extractable antenna. All SAR evaluations were made with antenna fully extended, please base upon the highest SAR readings in a specific laptop computer and perform additional SAR evaluation with antenna closed.

-> We redo necessary measurement accordingly, and updated test report.

Question #17 : There are multiple hot spots in the SAR distribution plots, please provide secondary hot spot readings.

-> We redo necessary measurement accordingly, and updated test report.

Question #18 : The external antenna can be rotated 360 degree, what is recommended position during normal operation ?

-> Flat and Vertical. You can also see recommended position in page 18 of user guide.

Best Regards

Mike Kuo

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of the original e-mail date may result in application dismissal and forfeiture of the filing fee. Also, please note that partial responses increase processing time and should not be submitted. Any questions about the content of this correspondence should be directed to the e-mail address listed below the name of the sender.

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