

EVALUATION REPORT

Applicant Name:

LG Electronics MobileComm U.S.A., Inc.

Address:

1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Issue:

March 29, 2017

Test Site/Location:

HCT CO., LTD., 74, Seoicheon-ro 578beon-gil, Majangmyeo, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

FCC ID : ZNFM320F
APPLICANT : LG Electronics MobileComm U.S.A., Inc.

Test Data Re-Use Summary

Introduction

FCC ID : ZNFM320F

Equipment Class(es) : PCE, DTS, DSS

Rule Part(s) : 2, 15, 22, 24, 27

Application's Statement : The applicant takes full responsibility that the test data referenced below represents compliance for this FCC ID.

Differences

Brief Description :

Some Cellular parts, Bluetooth & WLAN hardware and software of this device are identical to the implementation in ZNFM320H. The operational description includes detailed information about the changes between the devices. The data from that application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the summary table below.

Spot Check Verification Result Summary

(Note: The detail test data can be found in this documents, Appendix A, hereafter)

Category	Spot Check	Verdict
SAR :	GSM 850 / 1900	Share(1900 Re-Test)
	WCDMA 850 / 1700 / 1900	Share(1900 Re-Test)
	2.4 GHz WLAN	Share
	LTE Report	Share (Band 2, 4, 5 Re-Test)
Licensed EMC	ERP / EIRP	Share
	RSE	Share
Unlicensed EMC	Band Edge	Share
	Spurious Emissions	Share

Reference Detail Section

Reference FCC ID	Equipment Class	Folder Test / RF Exposure	Report Title / Section
ZNFM320H	PCE	SAR Report	All Sections(Except for LTE B2, 4, 5, 7,13, 17 and GSM / WCDMA 1900)
		GSM WCDMA Report	All Sections
		LTE Report	All Sections(Except for LTE B13, 17)
	DSS	Bluetooth Report	All Sections
		WLAN DTS Report	All Sections
	DTS	BT LE Report	All Sections
		SAR Report	All Sections

* SAR Re-test : GSM, WCDMA 1900(Body) / LTE B2(Head, Body) / LTE B4, 5(Body, Hot spot)


Signature
Research Engineer / Yunseok Lee
HCT CO.,LTD

Appendix A. The Spot check test data

1. Summary of the spot check for Licensed EMC

EFFECTIVE RADIATED POWER (GSM850) / (WCDMA850)

Modulation	Frequency		Mode	ZNFM320H (Reference)	ZNFM320F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				ERP	ERP	
	MHz	Ch.		(dBm)	(dBm)	
GSM850	824.2	128	VOICE	28.84	28.92	0.08
WCDMA850	846.6	4233	RMC	18.94	18.52	-0.42

RADIATED SPURIOUS EMISSIONS (GSM850) / (WCDMA850)

Modulation	Frequency		Mode	ZNFM320H (Reference)	ZNFM320F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				EIRP	EIRP	
	MHz	Ch.		(dBm)	(dBm)	
GSM850	1,648.40	128	VOICE	-51.06	-53.68	-2.62
	2,472.60			-41.26	-46.15	-4.89
	3,296.80			-51.94	-50.87	1.07
	4,121.00			-45.34	-43.16	2.18
WCDMA850	1,693.20	4233	RMC	-59.72	-59.09	0.63
	2,539.80			-53.71	-54.00	-0.29
	3,386.40			-52.89	-52.85	0.04

EQUIVALENT ISOTROPIC RADIATED POWER (GSM1900) / (WCDMA1900) / (WCDMA1700)

Modulation	Frequency		Mode	ZNFM320H (Reference)	ZNFM320F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
	EIRP			EIRP		
	MHz	Ch.		(dBm)	(dBm)	
GSM1900	1880.0	661	VOICE	31.57	29.68	-1.89
WCDMA1900	1880.0	9400	RMC	23.65	22.74	-0.91
WCDMA1700	1752.6	1513	RMC	23.48	23.22	-0.26

RADIATED SPURIOUS EMISSIONS (GSM1900) / (WCDMA1900) / (WCDMA1700)

Modulation	Frequency		Mode	ZNFM320H (Reference)	ZNFM320F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
	EIRP			EIRP		
	MHz	Ch.		(dBm)	(dBm)	
GSM1900	3,700.40	512	VOICE	-47.32	-51.65	-4.33
	5,550.60			-33.11	-36.07	-2.96
	7,400.80			-41.72	-43.26	-1.54
	9,251.00			-33.71	-37.37	-3.66
WCDMA1900	3,815.20	9538	RMC	-50.73	-49.73	1.00
	5,722.80			-41.95	-43.04	-1.09
	7,630.40			-42.26	-43.13	-0.87
WCDMA1700	3,505.20	1513	RMC	-39.16	-48.66	-9.50
	5,257.80			-40.42	-40.41	0.01
	7,010.40			-41.29	-43.61	-2.32

EQUIVALENT ISOTROPIC RADIATED POWER (LTE – Band 2/4/7)

Modulation	Frequency		Mode Bandwidth	ZNFM320H (Reference)	ZNFM320F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				EIRP	EIRP	
	MHz	Ch.		(dBm)	(dBm)	
LTE - B2	1905.0	19150	QPSK(10M)	25.03	22.43	-2.60
LTE – B4	1753.5	20385	QPSK(3M)	21.34	21.89	0.55
LTE – B7	2510.0	20850	QPSK(20M)	20.51	21.28	0.77

RADIATED SPURIOUS EMISSIONS (LTE – Band 2/4/7)

Modulation	Frequency		Mode Bandwidth	ZNFM320H (Reference)	ZNFM320F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				EIRP	EIRP	
	MHz	Ch.		(dBm)	(dBm)	
LTE - B2	3,818.60	19193	QPSK	-39.31	-38.58	0.73
	5,727.90		1.4M	-37.23	-39.96	-2.73
	7,637.20			-37.13	-40.42	-3.29
	9,546.50			-28.83	-38.69	-9.86
LTE – B4	3,508.60	20393	QPSK	-35.40	-41.11	-5.71
	5,262.90		1.4M	-38.74	-37.71	1.03
	7,017.20			-35.72	-40.91	-5.19
LTE – B7	5,010.00	20800	QPSK	-49.61	-46.89	2.72
	7,515.00		10M	-37.33	-34.95	2.38
	10,020.00			-47.19	-46.67	0.52

EFFECTIVE RADIATED POWER(LTE – Band 5)

Modulation	Frequency		Mode Bandwidth	ZNFM320H (Reference)	ZNFM320F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				ERP	ERP	
	MHz	Ch.		(dBm)	(dBm)	
LTE – B5	836.5	20525	QPSK (10M)	19.19	19.45	0.26

RADIATED SPURIOUS EMISSIONS (LTE – Band 5)

Modulation	Frequency		Mode Bandwidth	ZNFM320H (Reference)	ZNFM320F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				EIRP	EIRP	
	MHz	Ch.		(dBm)	(dBm)	
LTE – B5	1,651.00	20415	QPSK	-58.28	-59.58	-1.30
	2,476.50		3M	-45.51	-47.24	-1.73
	3,302.00			-54.27	-52.65	1.62

2. Summery of the spot check for SAR

Per FCC KDB 484596 D01 Referencing Test Data DR01-42712 4) e)

For RF exposure purposes, each combination of frequency band, wireless mode, and exposure test conditions shall be considered separately. A KDB inquiry is recommended for complex device configurations to confirm appropriate RF exposure test cases

SAR Spot check											
Band	Freq.	Exposure Conditions	Frequency Channel		Tune Up Limit	Original Model		Data Re-use Model		Spot Check Result	Deviation (%).
						ZNFM320H		ZNFM320F			
			MHz	Ch.	(dBm)	Meas. Power (dBm)	Meas. SAR 1g (W/kg)	Meas. Power (dBm)	Meas. SAR 1g (W/kg)		
GSM/GPRS/EDGE 850	824.2 ~ 848.8	Head	836.6	190	29.2	29.0	0.495	28.97	0.532	Share	7.5
		Body worn	836.6	190	29.2	29.0	0.632	28.97	0.661	Share	4.6
		Hotspot	836.6	190	29.2	29.0	0.632	28.97	0.661	Share	4.6
GSM/GPRS/EDGE 1900	1 850.2 ~ 1 909.8	Head	1 880	661	26.2	25.78	0.542	25.76	0.550	Share	1.5
		Body worn	1 880	661	26.2	25.78	0.435	25.76	0.532	Re-test	22.3
		Hotspot	1 880	661	26.2	25.78	0.489	25.76	0.539	Share	10.2
UMTS 850	826.4 ~ 846.6	Head	836.6	4183	24.2	24.02	0.331	23.98	0.310	Share	-6.3
		Body worn	836.6	4183	24.2	24.02	0.390	23.98	0.370	Share	-5.1
		Hotspot	836.6	4183	24.2	24.02	0.390	23.98	0.370	Share	-5.1
UMTS 1700	1 712.4 ~ 1 752.6	Head	1 732.4	1412	23.2	22.94	0.550	22.85	0.542	Share	-1.5
		Body worn	1 732.4	1412	23.2	22.94	0.468	22.85	0.506	Share	8.1
		Hotspot	1 732.4	1412	23.2	22.94	0.611	22.85	0.612	Share	0.2
UMTS 1900	1 852.4 ~ 1 907.6	Head	1 880.0	9400	23.2	22.91	0.630	22.88	0.575	Share	-8.7
		Body worn	1 880.0	9400	23.2	22.91	0.495	22.88	0.601	Re-test	21.4
		Hotspot	1 880.0	9400	23.2	22.91	0.540	22.88	0.585	Share	8.3
LTE 2 (PCS)	1 850.7 ~ 1 909.3	Head	1 860	18700	23.5	23.35	0.719	23.12	0.546	Re-test	-24.1
		Body worn	1 860	18700	23.5	23.35	0.504	23.12	0.586	Re-test	16.3
		Hotspot	1 860	18700	23.5	23.35	0.578	23.12	0.468	Share	-19.0
LTE 4 (AWS)	1 710.7 ~ 1 754.3	Head	1 732.5	20175	22.7	22.57	0.406	22.62	0.417	Share	2.7
		Body worn	1 732.5	20175	22.7	22.57	0.350	22.62	0.464	Re-test	32.6
		Hotspot	1 732.5	20175	22.7	22.57	0.435	22.62	0.518	Re-test	19.1
LTE 5 (Cell)	824.7 ~ 848.3	Head	836.5	20525	24.2	24.02	0.308	24.05	0.341	Share	10.7
		Body worn	836.5	20525	24.2	24.02	0.617	24.05	0.445	Re-test	-27.9
		Hotspot	836.5	20525	24.2	24.02	0.617	24.05	0.445	Re-test	-27.9
LTE 7	2 502.5 ~ 2 567.5	Head	2 510	20850	23.4	23.31	0.246	23.22	0.218	Share	-11.4
		Body worn	2 510	20850	23.4	23.31	0.590	23.22	0.521	Share	-11.7
		Hotspot	2 510	20850	23.4	23.31	0.590	23.22	0.521	Share	-11.7
802.11b	2 412 ~ 2 462	Head	2 437	6	16.5	16.37	0.911	16.35	0.925	Share	1.5
		Body worn	2 437	6	16.5	16.37	0.282	16.35	0.219	Share	-22.3
		Hotspot	2 437	6	16.5	16.37	0.282	16.35	0.219	Share	-22.3

- We measured the conducted power of the ZNFM320F and confirmed that it was within the tune up limit.

3. Summary of the spot check for Unlicensed EMC

Report	Test Item	Channel	Measured Frequency	LG-M320H Result [dBuV/m]		LG-M320F Result [dBuV/m]		Gap [dB]	
				Peak	Average	Peak	Average	Peak	Average
BT	Band Edge	78	2483.5 MHz~2500 MHz	69.26	41.95	67.95	40.08	-1.31	-1.87
	RSE	0	7206 MHz	56.36	42.53	55.15	40.45	-1.21	-2.08
BT LE	Band Edge	39	2483.5 MHz~2500 MHz	49.30	39.55	49.87	39.68	0.57	0.13
	RSE	0	7206 MHz	55.75	45.60	55.28	44.90	-0.47	-0.70
DTS	Band Edge	11	2483.5 MHz~2500 MHz	62.42	47.60	62.51	47.26	0.09	-0.34
	RSE	6	7311 MHz	54.75	42.48	54.63	42.29	-0.12	-0.19