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Test Data Re-Use Summary

Introduction

FCC ID: ZNFM400F
 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.
 The deviations are typical and within expected tolerances for identical production devices and not a result of the model differences.

Differences

Brief Description: Some Cellular parts, Bluetooth & WLAN hardware and software of this device are identical to the implementation in ZNFM400MT. 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
	WCDMA 850 / 1700 / 1900	Share
	2.4 GHz WLAN	Share
	LTE B2 / 4 / 5 / 7	Share
Licensed EMC	ERP/EIRP	Share
	RSE	Share
Unlicensed EMC	Band Edge	Share
	Spurious Emissions	Share

Reference Detail Section

Equipment Class	Reference FCC ID	Folder Test/RF Exposure	Report Title/Section
PCE	ZNFM400MT	SAR Report	All Sections (Except for LTE B12, 13, 17)
	ZNFM400MT	LTE report	All Sections (Except for LTE B12, 13, 17)
	ZNFM400MT	GSM WCDMA report	All Sections
DSS	ZNFM400MT	Bluetooth Report	All Sections
DTS	ZNFM400MT	WLAN DTS Report	All Sections
	ZNFM400MT	BT LE Report	All Sections
	ZNFM400MT	SAR report	All Sections



Signature
 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	ZNFM400MT (Reference)	ZNFM400F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
	ERP			ERP	ERP	
	MHz	Ch.		(dBm)	(dBm)	
GSM850	824.2	128	VOICE	29.61	27.13	-2.48
WCDMA850	836.6	4183	RMC	20.24	19.93	-0.31

RADIATED SPURIOUS EMISSIONS (GSM850) / (WCDMA850)

Modulation	Frequency		Mode	ZNFM400MT (Reference)	ZNFM400F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
	ERP			ERP	ERP	
	MHz	Ch.		(dBm)	(dBm)	
GSM850	1,648.40	128	VOICE	-58.81	-53.45	5.36
	2,472.60			-48.83	-46.42	2.41
	3,296.80			-54.87	-52.76	2.11
WCDMA850	1,673.20	4183	RMC	-59.25	-59.04	0.21
	2,509.80			-53.98	-54.05	-0.07
	3,346.40			-50.70	-54.56	-3.86

EQUIVALENT ISOTROPIC RADIATED POWER

(GSM1900) / (WCDMA1900) / (WCDMA1700)

Modulation	Frequency		Mode	ZNFM400MT (Reference)	ZNFM400F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				EIRP	EIRP	
	MHz	Ch.		(dBm)	(dBm)	
GSM1900	1909.8	810	VOICE	30.10	28.68	-1.42
WCDMA1900	1880.0	9400	RMC	24.34	23.01	-1.33
WCDMA1700	1752.6	1513	RMC	22.88	22.37	-0.51

RADIATED SPURIOUS EMISSIONS

(GSM1900) / (WCDMA1900) / (WCDMA1700)

Modulation	Frequency		Mode	ZNFM400MT (Reference)	ZNFM400F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				EIRP	EIRP	
	MHz	Ch.		(dBm)	(dBm)	
GSM1900	3,819.60	810	VOICE	-41.63	-44.29	-2.66
	5,729.40			-35.23	-37.49	-2.26
	7,639.20			-42.11	-44.83	-2.72
WCDMA1900	3,704.80	9262	RMC	-50.31	-51.08	-0.77
	5,557.20			-43.54	-44.82	-1.28
	7,409.60			-40.72	-42.64	-1.92
WCDMA1700	3,464.80	1412	RMC	-52.36	-51.68	0.68
	5,197.20			-43.13	-44.01	-0.88
	6,929.60			-42.22	-42.84	-0.62



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EFFECTIVE RADIATED POWER (LTE – Band 5)

Modulation	Frequency		Mode Bandwidth	ZNFM400MT (Reference)	ZNFM400F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
	ERP			ERP	ERP	
	MHz	Ch.		(dBm)	(dBm)	
LTE – B5	836.5	20525	QPSK(10M)	20.47	19.97	-0.50

RADIATED SPURIOUS EMISSIONS (LTE – Band 5)

Modulation	Frequency		Mode Bandwidth	ZNFM400MT (Reference)	ZNFM400F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
	ERP			ERP	ERP	
	MHz	Ch.		(dBm)	(dBm)	
LTE – B5	1,688.00	20600	QPSK	-58.67	-57.38	1.29
	2,532.00		10M	-48.41	-51.45	-3.04
	3,376.00			-52.22	-53.45	-1.23

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

Modulation	Frequency		Mode Bandwidth	ZNFM400MT (Reference)	ZNFM400F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				EIRP	EIRP	
	MHz	Ch.		(dBm)	(dBm)	
LTE - B2	1860.0	18700	QPSK(20M)	24.58	23.64	-0.94
LTE – B4	1753.5	20385	QPSK(3M)	22.71	21.96	-0.75
LTE – B7	2562.5	21375	QPSK(15M)	22.29	22.13	-0.16

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

Modulation	Frequency		Mode Bandwidth	ZNFM400MT (Reference)	ZNFM400F (Reuse)	deviation
				(Reference test data)	(Spot check test data)	
				EIRP	EIRP	
	MHz	Ch.		(dBm)	(dBm)	
LTE - B2	3,720.00	18700	QPSK	-47.27	-49.55	-2.28
	5,580.00		20M	-45.43	-45.53	-0.10
	7,440.00			-41.57	-44.05	-2.48
LTE – B4	3,490.00	20300	QPSK	-50.81	-47.95	2.86
	5,235.00		20M	-46.22	-48.36	-2.14
	6,980.00			-41.11	-43.49	-2.38
LTE – B7	5,020.00	20850	QPSK	-57.47	-57.81	-0.34
	7,530.00		20M	-44.67	-47.07	-2.40
	10,040.00			-49.40	-51.30	-1.90

2. Summary 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

Band	ZNFM400MT Measured 1g SAR(W/kg) Result		ZNFM400F Measured 1g SAR(W/kg) Spot check Result	Deviation (%)
GSM/GPRS/EDGE 850	Head	0.347	0.37	6.63
	Body worn	0.525	0.517	-1.52
	Hotspot	0.55	0.608	10.55
GSM/GPRS/EDGE 1900	Head	0.293	0.305	4.10
	Body worn	0.350	0.341	-2.57
	Hotspot	0.350	0.334	-4.57
WCDMA850	Head	0.298	0.296	-0.67
	Body worn	0.539	0.541	0.37
	Hotspot	0.539	0.541	0.37
WCDMA1700	Head	0.376	0.395	5.05
	Body worn	0.447	0.503	12.53
	Hotspot	0.447	0.503	12.53
WCDMA1900	Head	0.466	0.45	-3.43
	Body worn	0.573	0.637	11.17
	Hotspot	0.573	0.637	11.17
LTE Band 2	Head	0.51	0.518	1.57
	Body worn	0.733	0.711	-3.00
	Hotspot	0.733	0.711	-3.00
LTE Band 5	Head	0.251	0.283	12.75
	Body worn	0.455	0.485	6.6
	Hotspot	0.455	0.485	6.6
LTE Band 4	Head	0.408	0.388	-4.90
	Body worn	0.555	0.582	4.86
	Hotspot	0.555	0.582	4.86
LTE Band 7	Head	0.125	0.128	2.40
	Body worn	0.541	0.567	4.81
	Hotspot	0.541	0.567	4.81
2.4GHz WLAN	Head	0.884	0.996	12.67
	Body worn	0.184	0.215	16.85
	Hotspot	0.184	0.215	16.85

Note : The WLAN SAR difference is actually very small (0.031 W/kg), although the low values produce a large deviation percentage.



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3. Summary of the spot check for Unlicensed EMC

Report	Test Item	Channel	Measured Frequency	LG-M400MT Result [dBuV/m]		LG-M400F Result [dBuV/m]		Gap [dB]	
				Peak	Average	Peak	Average	Peak	Average
BT	Band Edge	78	2483.5 MHz~2500 MHz	67.31	39.59	66.46	38.36	0.85	1.23
	RSE	78	4960 MHz	50.93	37.92	50.58	37.88	0.35	0.04
			7440 MHz	54.72	40.96	54.5	40.64	0.22	0.32
BT LE	Band Edge	39	2483.5 MHz~2500 MHz	48.92	39.82	48.16	39.91	0.76	-0.09
	RSE	39	4960 MHz	50.18	40.15	50.05	39.89	0.13	0.26
			7440 MHz	55.09	44.79	54.2	43.9	0.89	0.89
DTS	Band Edge	11	2483.5 MHz~2500 MHz	64.23	48.40	65.77	47.38	-1.54	1.02
	RSE	1	4824 MHz	49.39	38.88	48.59	38.3	0.8	0.58
		6	7311 MHz	56.17	43.74	54.26	42.1	1.91	1.64