



Spot Check Evaluation

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History of this test report

Version	Description	Issued Date
01	Initial issue of report	Nov. 13, 2018



1. Introduction Section

The original model (FCC ID: IHDT56XP2) and the variant model (FCC ID: IHDT56XP4) has identical PCB layout, antenna, SW implementation for Bluetooth/Wi-Fi/GPS/NFC. Based on their similarity, the FCC Part 15C (equipment class: DTS, DSS, DXX) and Part 15E (equipment class: NII) test data issued test data of IHDT56XP4 references the test data of IHDT56XP2

The original model (FCC ID: IHDT56XP3) and the variant model (FCC ID: IHDT56XP4) has identical PCB layout, antenna, SW implementation for GSM/WCDMA/LTE. Based on their similarity, the FCC Part 22, 24 (equipment class: PCE) test data issued test data of IHDT56XP4 references the test data of IHDT56XP3

The original model (FCC ID: IHDT56XP1) and the variant model (FCC ID: IHDT56XP4) has identical PCB layout, antenna, SW implementation for GSM/WCDMA/LTE. Based on their similarity, the FCC Part 22, 24 (equipment class: PCE) test data issued test data of IHDT56XP4 references the test data of IHDT56XP1

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID (FCC ID: IHDT56XP4).



2. Difference Section

The original model (FCC ID: IHDT56XP2) and the variant model (FCC ID: IHDT56XP4) has identical PCB layout, antenna, SW implementation for Bluetooth/Wi-Fi/NFC/GPS. The details of similarity and difference can be found in the Operating Description.

The original model (FCC ID: IHDT56XP3) and the variant model (FCC ID: IHDT56XP4) has identical PCB layout, antenna, SW implementation for GSM/WCDMA/LTE. Based on their similarity, the FCC Part 22, 24 (equipment class: PCE) test data issued test data of IHDT56XP4 references the test data of IHDT56XP3

The original model (FCC ID: IHDT56XP1) and the variant model (FCC ID: IHDT56XP4) has identical PCB layout, antenna, SW implementation for GSM/WCDMA/LTE. Based on their similarity, the FCC Part 22, 24 (equipment class: PCE) test data issued test data of IHDT56XP4 references the test data of IHDT56XP1

Cellular transmitter RF components are different in IHDT56XP4, to support capability for different cellular bands.



FCC RADIO TEST REPORT

The product specification is outlined in the following table:

FCC ID			IHDT56XP1	IHDT56XP2	IHDT56XP3	IHDT56XP4
Wireless Tech	Mode		Frequency (MHz)			
GSM	GSM Voice GPRS (GMSK) EDGE (8PSK)	Multi-Slot Class 12 DTM: No	850/1900	850/1900	850/1900	850/1900
UMTS	AMR/RCM12.2Kbps HSDPA/HSUPA/DC-HSDPA		B5/B4/B2	B5/B4/B2	B5/B2	B5/B4/B2
LTE (FDD)/(TDD)	QPSK 16QAM		B2/4/5/7/12/ 13/17/25/26/ 38/41/66	B2/4/5/7/12/ 17/66	B2/4/5/7/26/ 38/41	B2/4/5/7/26/ 38/41
CDMA	RC1/RC3		BC0/BC1/ BC10	-	-	-
Wi-Fi	11b/11g/11n(HT20)		2412-2462			
	11a/11n(HT20)/11n(HT40)		5150~5250 5250~5350 5470~5725 5725~5850 *5600-5650 notched			
Bluetooth	V4.2 LE		2402-2480 MHz			
NFC	ASK		-	-	13.56MHz	-



3. Spot Check Verification Data Section

Summary of the spot check:

Test Item	Mode	IHDT56XP2 Worst Result	IHDT56XP4 Worst Result	Difference (dB)
Average Conducted Power (dBm)	802.11b	16.49	16.82	-0.33
	802.11g	13.48	13.89	-0.41
	11n HT20	11.97	11.33	0.64
	BT (1Mbps)	11.26	10.95	0.31
	BT (2Mbps)	9.15	8.92	0.23
	BT (3Mbps)	9.17	8.97	0.20
	BT-LE	1.96	1.86	0.10
	11a, 5.2GHz	14.49	14.43	0.06
	11n HT20, 5.2GHz	14.47	14.29	0.18
	11n HT40, 5.2GHz	14.48	14.05	0.43
	11a, 5.3GHz	14.39	14.20	0.19
	11n HT20, 5.3GHz	14.47	14.30	0.17
	11n HT40, 5.3GHz	14.44	14.27	0.17
	11a, 5.5GHz	14.49	14.32	0.17
	11n HT20, 5.5GHz	14.34	14.21	0.13
	11n HT40, 5.5GHz	14.47	14.40	0.07
	11a, 5.8GHz	14.37	14.32	0.05
	11n HT20, 5.8GHz	14.49	14.25	0.24
	11n HT40, 5.8GHz	14.44	14.43	0.01
	IMEI of test sample	355570090015416 355570090015424	355579090013313 355579090013321	
	Test date	2018/09/20~2018/10/09	2018/10/19	
	Mode	IHDT56XP1 Worst Result	IHDT56XP4 Worst Result	
	GSM 850	33.33	33.00	0.33
	EDGE 850	26.83	26.75	0.08
	GSM 1900	29.80	29.55	0.25
	EDGE 1900	25.92	25.86	0.06
	UMTS B2 (RMC 12.2Kbps)	23.10	22.99	0.11
	UMTS B5 (RMC 12.2Kbps)	23.26	23.40	-0.14
	LTE B2 (FDD - QPSK)	22.46	22.58	-0.12
	LTE B4 (FDD - QPSK)	22.95	22.91	0.04
	LTE B5 (FDD - QPSK)	23.19	23.20	-0.01
	LTE B7 (FDD - QPSK)	23.14	23.09	0.05
	LTE B26 (FDD - QPSK)	23.32	23.26	0.06
	LTE B26 (FDD - QPSK) 90s	23.32	23.25	0.07
	LTE B38 (TDD - QPSK)	23.81	23.10	0.71
	IMEI of test sample	355569090014213	355579090011036 355579090011044	
	Test date	2018/09/21~2018/10/6	2018/10/10	



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Test Item	Mode	IHDT56XP2 Worst Result	IHDT56XP4 Worst Result	Difference (dB)
Radiated Spurious Emission (Band Edge. Harmonic) (dBuV/m)	802.11b	47.03	49.07	-2.04
	11n HT20	50.85	50.39	0.46
	BT	46.50	47.65	-1.15
	BT-LE	43.61	43.56	0.05
	11n HT40, 5.2GHz	50.79	48.82	1.97
	11n HT40, 5.3GHz	50.70	50.84	-0.14
	11n HT40, 5.5GHz	64.52	62.14	2.38
	11n HT20, 5.8GHz	52.04	49.96	2.08
	IMEI of test sample	355570090016257 355570090016265	355579090013313 355579090013321	
	Test date	2018/10/1~2018/10/15	2018/10/28~2018/10/29	
	Mode	IHDT56XP3 Worst Result	IHDT56XP4 Worst Result	Difference (dB)
	GSM 850	-46.03	-48.70	2.67
	EDGE 850	-53.96	-51.18	-2.78
	GSM 1900	-31.07	-33.30	2.23
	EDGE 1900	-38.26	-40.20	1.94
	UMTS B2 (RMC 12.2Kbps)	-49.74	-49.47	-0.27
	UMTS B5 (RMC 12.2Kbps)	-56.24	-57.45	1.21
	LTE B2 (FDD - QPSK)	-50.65	-49.99	-0.66
	LTE B5 (FDD - QPSK)	-38.90	-39.62	0.72
	LTE B7 (FDD - QPSK)	-46.80	-45.37	-1.43
	LTE B26 (FDD - QPSK)	-35.18	-36.86	1.68
	LTE B26 (FDD - QPSK) 90s	-34.22	-35.32	1.10
	LTE B38 (TDD - QPSK)	-32.04	-33.84	1.80
	LTE B41 (TDD - QPSK)	-44.35	-44.76	0.41
	IMEI of test sample	359505090015756 359505090015764	355579090014212 355579090014220	
	Test date	2018/9/22~2018/9/28	2018/09/29~2018/10/1	

Conclusion:

Radiated spurious emission test against the variant model for non-cellular part based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

Based on the spot check test result (power levels measured are within 1dB, and the worst case of RSE spot check verification based on the worst condition from the original model is within 3dB, and are compliance with the limits), the test data from the original model is representative for the variant model.

The unwanted, harmonics, radiated spurious emission is reported peak measurement only due to spurious lower than 20dB than the limit, 74dBuV/m



4. Reference detail Section

Rule Part	Equipment Class	Wireless Technology	Frequency Band (MHz)	Reference FCC ID	Type Grant/Permissive Change	Reference Report Title	Reference Application	Reference Report Sections
15C	DTS	Bluetooth – LE Wii-Fi	2400–2483.5	IHDT56XP2	Original Grant	FCC RF Test Report	IHDT56XP4	Part 15C (FR890804-01B, FR890804-01C)
	DSS	Bluetooth	2400–2483.5	IHDT56XP2	Original Grant	FCC RF Test Report	IHDT56XP4	Part 15C (FR890804-01A)
15E	NII	Wi-Fi	5150–5250 5250–5350 5470–5725 5725–5850	IHDT56XP2	Original Grant	FCC RF Test Report	IHDT56XP4	Part 15E (FR890804-01E, FR890804-01F)
	NII	DFS	5470–5725	IHDT56XP2	Original Grant	FCC RF Test Report	IHDT56XP4	Part 15E (FZ890804-01)
Part 22.24.27	PCE	GSM/WCDMA	GSM 850/1900 WCDMA B2/5	IHDT56XP1 IHDT56XP3	Original Grant	FCC RF Test Report	IHDT56XP4	Part 22.24.27 (FG890804A, FG890804-02A)
		LTE	LTE B2/5/7/26/38/41	IHDT56XP1 IHDT56XP3	Original Grant	FCC RF Test Report	IHDT56XP4	Part 22.24.27 (FG890804C, FG890804-02B)
Part 90s	PCE	LTE	LTE B26	IHDT56XP1 IHDT56XP3	Original Grant	FCC RF Test Report	IHDT56XP4	Part 90s (FG880204D, FG880204-02C)

End of this report