



Conducted Output Power (802.11n-CH 100) 58.5 Mbps

Conducted Output Power (802.11n-CH 100) 65 Mbps

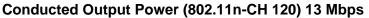


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21		
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Conducted Output Power (802.11n-CH 120) 6.5 Mbps







FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr			
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HCTR1208FR33	August 20, 2012	ugust 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC				
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Conducted Output Power (802.11n-CH 120) 19.5 Mbps

Conducted Output Power (802.11n-CH 120) 26 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
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Conducted Output Power (802.11n-CH 120) 39 Mbps

Conducted Output Power (802.11n-CH 120) 52 Mbps



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Conducted Output Power (802.11n-CH 120) 58.5 Mbps

Conducted Output Power (802.11n-CH 120) 65 Mbps

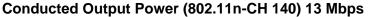


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	
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Conducted Output Power (802.11n-CH 140) 6.5 Mbps







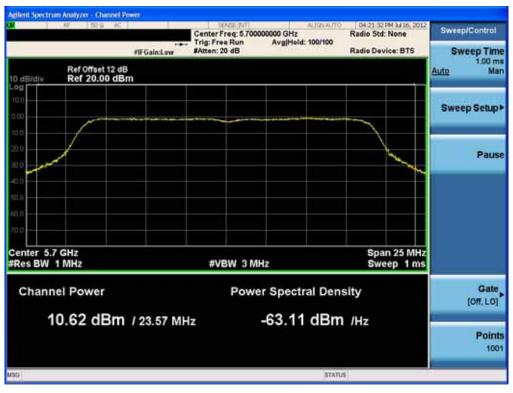
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1208FR33	August 20, 2012	igust 20, 2012 GSM/ŴCDMA/CDMA Phone with Bluetooth/WLAN/NFC				
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Conducted Output Power (802.11n-CH 140) 19.5 Mbps

Conducted Output Power (802.11n-CH 140) 26 Mbps



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21			
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Conducted Output Power (802.11n-CH 140) 39 Mbps

Conducted Output Power (802.11n-CH 140) 52 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21		
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Conducted Output Power (802.11n-CH 140) 58.5 Mbps

Conducted Output Power (802.11n-CH 140) 65 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21		
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40 MHz BW

RESULT PLOTS (5190 MHz ~5230 MHz)

it Spectrum Analyzer - Channel Pe 01:53:50 PM 3d III, 2012 Radio Std: None Center Freq: 5.19000000 GHz Trig: Free Run Avg[Held: 100/100 ALIGN AUTO Sweep/Control Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 12 dB Ref 20.00 dBm Auto Sweep Setup > Pause Center 5.19 GHz #Res BW 1 MHz Span 50 MHz Sweep 1 ms #VBW 3 MHz Gate **Channel Power Power Spectral Density** 4.85 dBm / 43.21 MHz -71.51 dBm /Hz Points 1001 STATUS

Conducted Output Power (802.11n-CH 36) 13.5 Mbps

Conducted Output Power (802.11n-CH 36) 27 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
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Conducted Output Power (802.11n-CH 36) 40.5 Mbps

Conducted Output Power (802.11n-CH 36) 54 Mbps



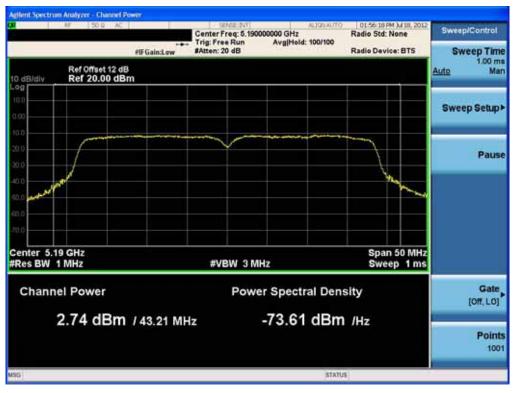
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21		
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Conducted Output Power (802.11n-CH 36) 81 Mbps

Conducted Output Power (802.11n-CH 36) 108 Mbps



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Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	
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Conducted Output Power (802.11n-CH 36) 121.5 Mbps

Conducted Output Power (802.11n-CH 36) 135 Mbps

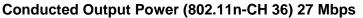


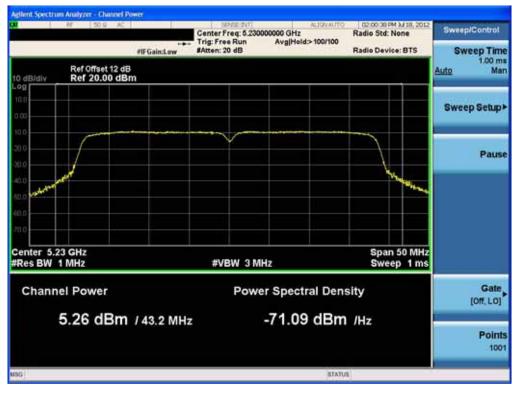
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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it Spectrum Analyzer - Channel Po Center Freq: 5.23000000 GHz Trig: Free Run Avg|Hold: 100/100 #Atten: 20 dB 02:00:10 PM 3.4 18, 2012 Radio Std: None ALIGN AUTO Sweep/Control #IFGain:Low Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 12 dB Ref 20.00 dBm Auto 0 dB/di Sweep Setup > Pause Center 5.23 GHz #Res BW 1 MHz Span 50 MHz Sweep 1 ms #VBW 3 MHz Gate **Channel Power Power Spectral Density** 5.62 dBm / 43.2 MHz -70.74 dBm /Hz Points 1001 STATUS

Conducted Output Power (802.11n-CH 36) 13.5 Mbps





FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	
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Conducted Output Power (802.11n-CH 36) 40.5 Mbps

Conducted Output Power (802.11n-CH 36) 54 Mbps



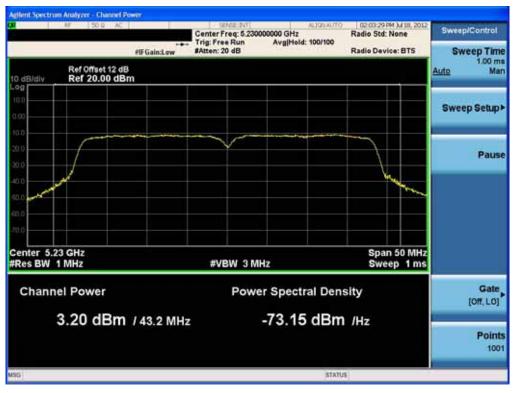
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 36) 81 Mbps

Conducted Output Power (802.11n-CH 36) 108 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 36) 121.5 Mbps

Conducted Output Power (802.11n-CH 36) 135 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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RESULT PLOTS (5270 MHz ~5310 MHz)

Conducted Output Power (802.11n-CH 52) 13.5 Mbps



Conducted Output Power (802.11n-CH 52) 27 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	





Conducted Output Power (802.11n-CH 52) 40.5 Mbps

Conducted Output Power (802.11n-CH 52) 54 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 52) 81 Mbps

Conducted Output Power (802.11n-CH 52) 108 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
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HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 52) 121.5 Mbps



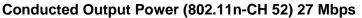


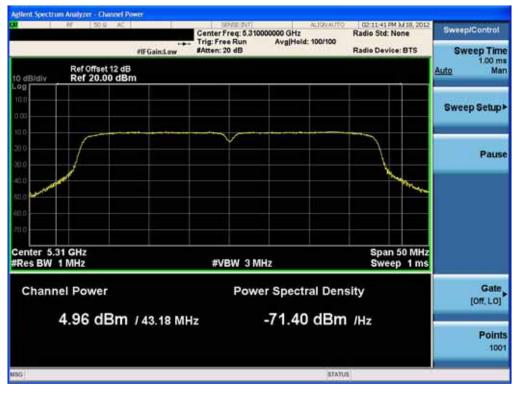
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	
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it Spectrum Analyzer - Channel Po Center Freq: 5.310000000 GHz Trig: Free Run Avg|Hold: 100/100 #Atten: 20 dB 02:10:52 PM 3.4 18, 2012 Radio Std: None ALIGN AUTO Sweep/Control #IFGain:Low Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 12 dB Ref 20.00 dBm Auto 0 dB/di Sweep Setup > Pause Center 5.31 GHz #Res BW 1 MHz Span 50 MHz Sweep 1 ms #VBW 3 MHz Gate **Channel Power Power Spectral Density** 5.00 dBm / 43.18 MHz -71.35 dBm /Hz Points 1001 STATUS stà i

Conducted Output Power (802.11n-CH 52) 13.5 Mbps





FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	
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Conducted Output Power (802.11n-CH 52) 40.5 Mbps

Conducted Output Power (802.11n-CH 52) 54 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 52) 81 Mbps

Conducted Output Power (802.11n-CH 52) 108 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	





Conducted Output Power (802.11n-CH 52) 121.5 Mbps





FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21	
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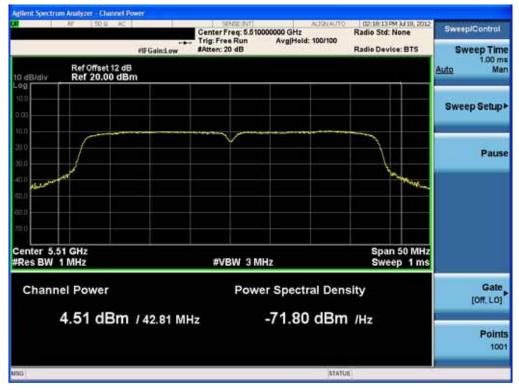


RESULT PLOTS (5510 MHz ~5670 MHz)

Conducted Output Power (802.11n-CH 100) 13.5 Mbps



Conducted Output Power (802.11n-CH 100) 27 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	





Conducted Output Power (802.11n-CH 100) 40.5 Mbps

Conducted Output Power (802.11n-CH 100) 54 Mbps



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 100) 81 Mbps

Conducted Output Power (802.11n-CH 100) 108 Mbps



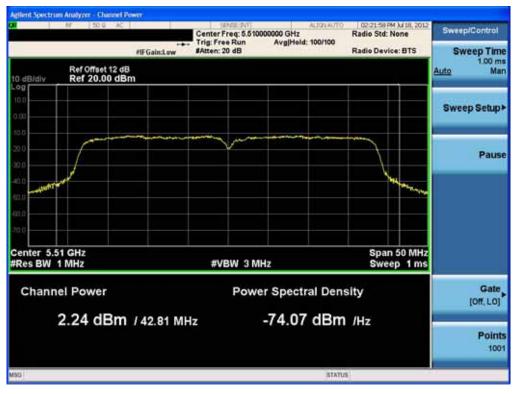
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 100) 121.5 Mbps

Conducted Output Power (802.11n-CH 100) 135 Mbps

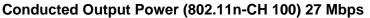


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21
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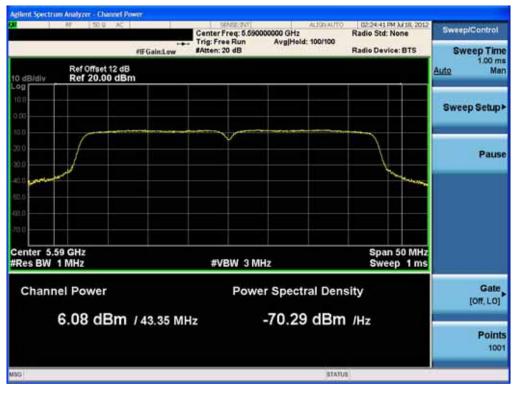


501

Conducted Output Power (802.11n-CH 100) 13.5 Mbps it Spectrum Analyzer - Channel Po Center Freq: 5.59000000 GHz Trig: Free Run Avg|Held: 100/100 #Atten: 20 dB 02:24:01 PM 3d 18, 2012 Radio Std: None ALIGNAUTO Sweep/Control #IFGain:Low Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 12 dB Ref 20.00 dBm Auto 10 dB/di Sweep Setup > Pause Center 5.59 GHz #Res BW 1 MHz Span 50 MHz Sweep 1 ms #VBW 3 MHz Gate **Channel Power Power Spectral Density** 6.17 dBm / 43.35 MHz -70.20 dBm /Hz Points 1001



STATUS



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
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Conducted Output Power (802.11n-CH 100) 40.5 Mbps

Conducted Output Power (802.11n-CH 100) 54 Mbps



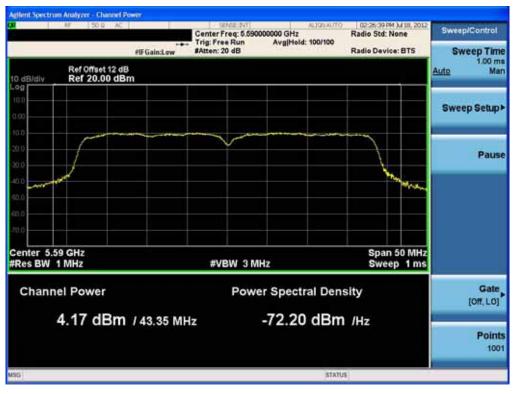
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 100) 81 Mbps

Conducted Output Power (802.11n-CH 100) 108 Mbps



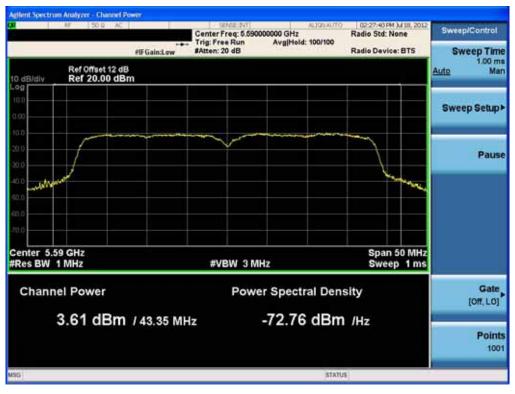
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 100) 121.5 Mbps

Conducted Output Power (802.11n-CH 100) 135 Mbps

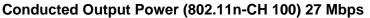


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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it Spectrum Analyzer - Channel P Center Freq: 5.570000000 GHz Trig: Free Run Avg|Held: 100/100 #Atten: 20 dB 02:28:41 PM 3.4 18, 2012 Radio Std: None ALIGNAUTO Sweep/Control #IFGain:Low Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 12 dB Ref 20.00 dBm Auto 0 dB/di Sweep Setup > Pause Span 50 MHz Sweep 1 ms Center 5.67 GHz #Res BW 1 MHz #VBW 3 MHz Gate **Channel Power Power Spectral Density** 5.09 dBm / 43.73 MHz -71.31 dBm /Hz Points 1001 STATUS 501

Conducted Output Power (802.11n-CH 100) 13.5 Mbps





FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
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Conducted Output Power (802.11n-CH 100) 40.5 Mbps

Conducted Output Power (802.11n-CH 100) 54 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
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Conducted Output Power (802.11n-CH 100) 81 Mbps

Conducted Output Power (802.11n-CH 100) 108 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21
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Conducted Output Power (802.11n-CH 100) 121.5 Mbps

Conducted Output Power (802.11n-CH 100) 135 Mbps

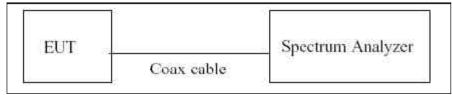


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
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The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies. The maximum permissible peak power spectral density is 4 dBm/ MHz in the 5.15 GHz – 5.25 GHz band and 11 dBm/ MHz in the 5.25 GHz – 5.35 GHz and 5.47 GHz – 5.725 GHz bands

TEST CONFIGURATION



TEST PROCEDURE

The spectrum analyzer is set to : RBW = 1 MHz VBW = 3 MHz SPAN = to encompass the entire EBW of the signal Sweep Time = auto Sweep Point = 1001 Detector Mode = Average Trace average at least 100 traces in power averaging(RMS) mode

Sample Calculation

PSD = Reading Value + ATT loss + Cable loss(1 ea) = -5 dBm + 10 dB + 0.8 dB = 15.8 dBm

Note :

- 1. Spectrum reading values are not plot data. The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
- 2. Spectrum offset = Attenuator loss + Cable loss
- 3. We apply to the offset in the 2.4 GHz and 5 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is 11 dB at 2.4 GHz and 12 dB at 5 GHz. We used the particular cable type that is supported by manufacture.

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			Test	Result	
Frequency (MHz)	Channel No.	Mode	Power Density (dBm)	Limit (dBm)	Pass/Fail
5180	36		-0.176	4	Pass
5200	40	802.11a	0.527	4	Pass
5240	48	-	-0.222	4	Pass
5260	52		0.605	11	Pass
5300	60	802.11a	-0.025	11	Pass
5320	64		-0.260	11	Pass
5500	100		0.261	11	Pass
5600	120	802.11a	-0.123	11	Pass
5700	140		0.366	11	Pass

Conducted Power Density Measurements

Conducted Power Density Measurements

Fraguanay			Test	Result	
Frequency (MHz)	Channel No.	Mode	Power Density (dBm)	Limit (dBm)	Pass/Fail
5180	36	000 44m 00MU	-0.446	4	Pass
5200	40	802.11n_20MHz - BW	0.234	4	Pass
5240	48		-0.606	4	Pass
5260	52	802 11m 20MH-	0.160	11	Pass
5300	60	802.11n_20MHz - BW -	-0.114	11	Pass
5320	64	DVV	-0.439	11	Pass
5500	100	902 11p 20MU-	-0.197	11	Pass
5600	120	802.11n_20MHz - BW -	-1.162	11	Pass
5700	140		0.009	11	Pass

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
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HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21



			Test	Result	
Frequency (MHz)	Channel No.	Mode	Power Density (dBm)	Limit (dBm)	Pass/Fail
5190	38	802.11n_40	-9.585	4	Pass
5230	46	MHz BW	-8.792	4	Pass
5270	54	802.11n_40	-9.016	4	Pass
5310	62	MHz BW	-8.159	11	Pass
5510	102	802 11m 10	-9.266	11	Pass
5590	118	802.11n_40 MHz BW	-7.857	11	Pass
5670	134		-8.998	11	Pass

Conducted Power Density Measurements

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	
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Power Spectral Density (802.11a-CH 36)

Power Spectral Density (802.11a-CH 40)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
Test Report No.	Date of Issue:	ЕИТ Туре:	FCC ID:		
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Power Spectral Density (802.11a-CH 48)

Power Spectral Density (802.11a-CH 52)

		Free Run n: 20 dB	Avg Type: F Avg Hold: 10	Pwr(RMS) 00/100	TYPE A MANA DET A P N N	Frequency
Bidiy Ref Offset 12 dB				Mkr1 5,2	64 225 G 0.605 dE	Hz Auto Tune Sm
o			1			Center Free 5.260000000 GH
		~				Start Free 5.247500000 GH
					A March 14	Stop Free 5.272500000 GH
0 						CF Ster 2.500000 MH Auto Ma
						Freq Offse 0 H
nter 5.26000 GHz es BW 1.0 MHz	#VBW 3.0 N	14-1		Sr Sweep 1.00	an 25.00 M	IHZ

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
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Power Spectral Density (802.11a-CH 60)

Power Spectral Density (802.11a-CH 64)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	
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NF 50.9 AC		SAME (NT)	OTLAVDLA	04:52:38 PM Jul 16, 2012	Frequency
	PNO: Fast ++++	Trig: Free Run #Atten: 20 dB	Avg Type: Pwr(RMS) Avg[Hold: 100/100	TYPE A MUMMUM DET A P.N.N.N.N	Frequency
Ref Offset 12 dB 0 dB/div Ref 20.00 dBm			Mkr1	5.504 350 GHz 0.261 dBm	Auto Tune
100			A1.		Center Free 5.500000000 GH:
10.0				\mathbf{n}	Start Free 5.487500000 GH
210 Jacobs March				Wanner	Stop Fred 5.512500000 GH
40.0					CF Stej 2.500000 MH <u>Auto</u> Mar
a 0					Freq Offse 0 H
700 Center 5.50000 GHz Res BW 1.0 MHz	#VBW	3.0 MHz*	Sweep	Span 25.00 MHz 1.00 ms (1001 pts)	

Power Spectral Density (802.11a-CH 100)

Power Spectral Density (802.11a-CH 120)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	ЕИТ Туре:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Power Spectral Density (802.11a-CH 140)

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21	
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M 50.9 K	PNO: Fast	Trig: Free Run #Atten: 20 dB	Avg Type: Pwr(RMS) Avg[Hold: 100/100	04-58:12 PM 3J16, 2012 TRACE 2 2 4 5 TYPE A MUMMUM DET A P M M M M	Frequency
Ref Offset 12 dB 0 dB/div Ref 20.00 dBm	o Gain:Low	Price 1, 10 40	Mkr1	5.185 775 GHz -0.446 dBm	Auto Tun
100					Center Fre 5.180000000 GH
h 00					Start Fre 5.167500000 GH
20.0 Xi0					Stop Fre 6.192500000 GH
0.0					CF Ste 2.500000 MH Auto Ma
m o					Freq Offse 0 H
Center 5.18000 GHz Res BW 1.0 MHz	#VBW	3.0 MHz*	Sweep 1	Span 25.00 MHz .00 ms (1001 pts)	

Power Spectral Density (802.11n-CH 36)

Power Spectral Density (802.11n-CH 40)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Power Spectral Density (802.11n-CH 48)

Power Spectral Density (802.11n-CH 52)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21			
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Power Spectral Density (802.11n-CH 60)

Power Spectral Density (802.11n-CH 64)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	ЕИТ Туре:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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N 5	DB AC	34M8(3VT)	OTLA VDLA	05:00:35 PM 3d 16, 2012	Frequency
	PNO: Fast IFGain:Low	Trig: Free Run #Atten: 20 dB	Avg Type: Pwr(RMS) Avg[Hold: 100/100	TYPE A WANNAW	- requeitey
Ref Offset	12 dB 0 dBm		Mkr1	5.503 650 GHz -0.197 dBm	Auto Tune
100					Center Free 5.50000000 GH:
0.00	-		1		
10.0					Start Fred 5.487500000 GH;
200				h	Stop Free 6.512500000 GH
40.0					CF Step 2.500000 MH Auto Mar
a.o					Freq Offse 0 Hi
70.0					
Center 5.50000 GHz Res BW 1.0 MHz		3W 3.0 MHz*	Sweep	Span 25.00 MHz 1.00 ms (1001 pts)	
80			STATUS		

Power Spectral Density (802.11n-CH 100)

Power Spectral Density (802.11n-CH 120)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Power Spectral Density (802.11n-CH 140)

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		
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HCTR1208FR33	August 20, 2012	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		
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nt Spectrum Analyzer - Swept SA 02:35:17 PM Jul III, 2012 TRACE III 2:36 III TYPE A DIMINISTR Avg Type: Pwr(RMS) Avg[Hold: 100/100 Frequency PNO: Fast +++ IFGain:Low #Atten: 20 dB Auto Tune Mkr1 5.203 65 GHz -9.585 dBm Ref Offset 12 dB Ref 20.00 dBm **Center Freq** 5.19000000 GHz Start Freq ¢1 5.165000000 GHz Stop Freq 5.215000000 GHz CF Step 5.000000 MHz Man THE AL Auto Freq Offset 0 Hz Center 5.19000 GHz #Res BW 1.0 MHz Span 50.00 MHz Sweep 1.00 ms (1001 pts) #VBW 3.0 MHz*

Power Spectral Density (802.11n-CH 38)

Power Spectral Density (802.11n-CH 46)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
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Power Spectral Density (802.11n-CH 54)

Power Spectral Density (802.11n-CH 62)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21		
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Power Spectral Density (802.11n-CH 102)

Power Spectral Density (802.11n-CH 118)



FCC PT.15.247 TEST REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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NF 50.9 AC		[4N(2)]N(1)	ALIGNAUTO	03:09:09 PM Jul 18, 2012	1 Martine Law
	PNO: Fast +++ IFGain:Low	Trig: Free Run #Atten: 20 dB	Avg Type: Pwr(RMS) Avg[Hold: 100/100	TYPE A MINIMUM	Frequency
Ref Offset 12 dB			Mkr1	5.684 05 GHz -8.998 dBm	Auto Tun
100					Center Free 5.670000000 GH
10.0			¹		Start Free 6.645000000 GH
30.0					Stop Free 5,69500000 GH
40.0 market and the second sec				North and	CF Step 5.000000 MH Auto Mar
ED 0 70.0					Freq Offse 0 H
Center 5.67000 GHz Res BW 1.0 MHz	#VBW	3.0 MHz*	Sweep 1	Span 50.00 MHz .00 ms (1001 pts)	

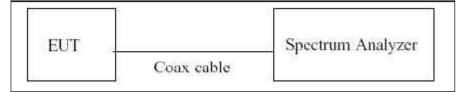
Power Spectral Density (802.11n-CH 134)

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21			
	Page = 1.5.4 ef 202					



The spectrum analyzer was connected to the antenna terminal while the EUT was operating in the continuous transmission mode at the appropriate center frequencies. The largest permissible difference between the modulation envelope(measured using a peak hold function) and the maximum conducted output power 13 dB/MHz.

TEST CONFIGURATION



TEST PROCEDURE

We tested according to KDB 789033(issued 03/05/2012).

The spectrum analyzer is set to :

- 1. Span = Set the span to view the entire emission bandwidth.
- 2. RBW = 1 MHz
- 3. VBW = 3 MHz
- 4. Sweep = Auto couple
- 5. Detector Mode = Peak
- 6. Trace Mode = Max hold
- 7. Use the procedure to measure the PPSD
- 8. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

Note :

- 1. The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
- 2. Spectrum offset = Attenuator loss + Cable loss
- 3. We apply to the offset in the 2.4 GHz and 5 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is 11 dB at 2.4 GHz and 12 dB at 5 GHz. We used the particular cable type that is supported by manufacture.

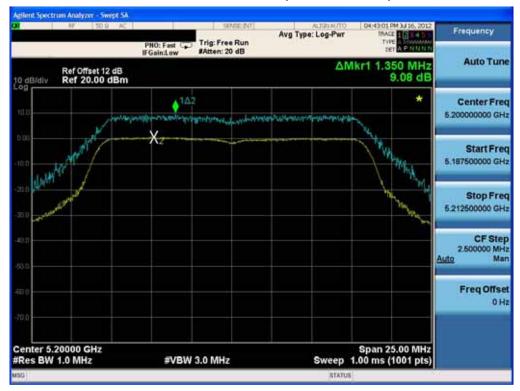
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21





Peak Excursion Ratio (802.11a-CH 36)

Peak Excursion Ratio (802.11a-CH 40)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
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Peak Excursion Ratio (802.11a-CH 48)

Peak Excursion Ratio (802.11a-CH 52)



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Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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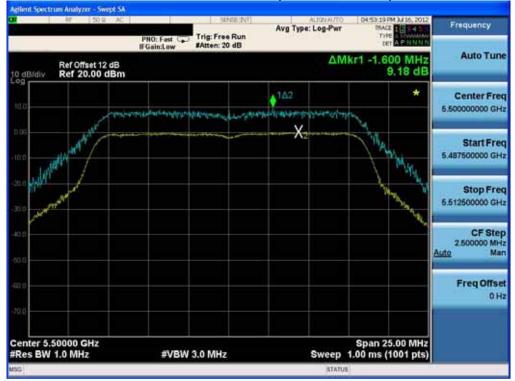
Peak Excursion Ratio (802.11a-CH 60)

Peak Excursion Ratio (802.11a-CH 64)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Peak Excursion Ratio (802.11a-CH 100)

Peak Excursion Ratio (802.11a-CH 120)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	





Peak Excursion Ratio (802.11a-CH 140)

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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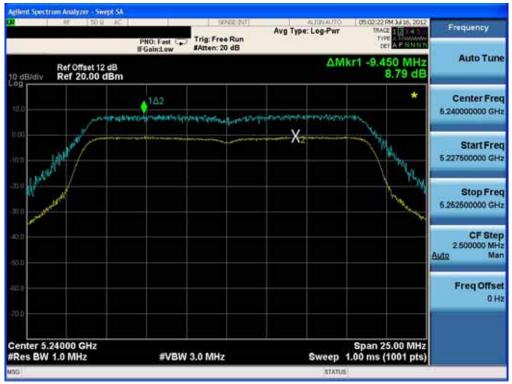
Peak Excursion Ratio (802.11n-CH 36)

Peak Excursion Ratio (802.11n-CH 40)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Peak Excursion Ratio (802.11n-CH 48)

Peak Excursion Ratio (802.11n-CH 52)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Peak Excursion Ratio (802.11n-CH 60)

Peak Excursion Ratio (802.11n-CH 64)



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Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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Peak Excursion Ratio (802.11n-CH 100)

Peak Excursion Ratio (802.11n-CH 120)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21			
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Peak Excursion Ratio (802.11n-CH 140)

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT					
Test Report No.	Date of Issue:	Date of Issue: EUT Type:					
HCTR1208FR33	August 20, 2012	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC					
	HCTR1208FR33 August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYCCDMAPTL21 Page 1 6 5 of 203						





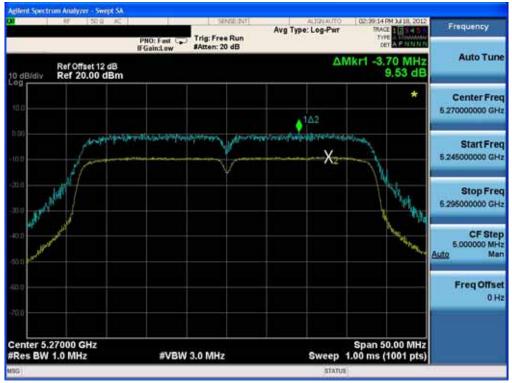
Peak Excursion Ratio (802.11n-CH 38)

Peak Excursion Ratio (802.11n-CH 46)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT					
Test Report No.	Date of Issue:	Date of Issue: EUT Type:					
HCTR1208FR33	August 20, 2012	August 20, 2012 GSM/VCDMA/CDMA Phone with Bluetooth/WLAN/NFC					
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Peak Excursion Ratio (802.11n-CH 54)

Peak Excursion Ratio (802.11n-CH 62)



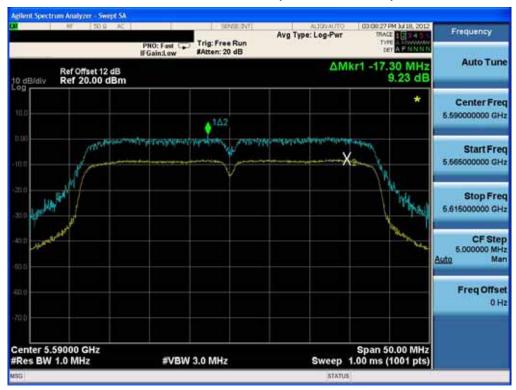
FCC PT.15.247 TEST REPORT		www.hct.co.kr				
Test Report No.	Date of Issue:	Date of Issue: EUT Type:				
HCTR1208FR33	August 20, 2012	JYCCDMAPTL21				
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Peak Excursion Ratio (802.11n-CH 102)

Peak Excursion Ratio (802.11n-CH 118)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				
Test Report No.	Date of Issue:	Date of Issue: EUT Type:				
HCTR1208FR33	August 20, 2012	JYCCDMAPTL21				
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NF 50.9 AC	PNO: Fast	Trig: Free Run #Atten: 20 dB	Avg Type: Log-Pwr	103:09:47 PM Jul III, 2012 TRACE 10 14 10 TYPE 100000000	Frequency
Ref Offset 12 dB dB/div Ref 20.00 dBm	ir Gain:Low	Price 1, 10 40	ΔΝ	1kr1 -2.05 MHz 8.58 dB	Auto Tune
00				*	Center Free
109			♦1∆2		E
0.0	يدو يعاشب من الله ومديا و	windhight the services	normalite to the former	June -	Start Free 5.645000000 GH
no the state				This all works	Stop Fre 5.695000000 GH
and an and a state of the state				North and Name and	CF Ste 5.000000 MH Auto Ma
10 g					Freq Offse 0 H
enter 5.67000 GHz				Span 50.00 MHz	
Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 1	.00 ms (1001 pts)	

Peak Excursion Ratio (802.11n-CH 134)

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT					
Test Report No.	Date of Issue:	Date of Issue: EUT Type:					
HCTR1208FR33	August 20, 2012	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC					
	HCTR1208FR33 August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYCCDMAPTL21 Page 1 6 9 of 203						



The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -30 $^{\circ}$ C and 50 $^{\circ}$ C. The temperature was incremented by 10 $^{\circ}$ C intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.

OPERATING FREQUENCY:	<u>5,200,000,000 I</u>	
CHANNEL:	40	
REFERENCE VOLTAGE:	3.7 VDC	

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%		+20(Ref)	5 200 027	27.00
100%		-30	5 200 016	15.90
100%		-20	5 200 026	26.30
100%		-10	5 200 023	23.01
100%	3.7	0	5 199 972	-28.02
100%		+10	5 199 975	-24.62
100%		+30	5 200 019	18.72
100%		+40	5 199 980	-19.65
100%		+50	5 200 026	26.49
115%	3.3	+20	5 199 976	-23.71
Batt. Endpoint	4.7	+20	5 199 975	-25.18

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				
Test Report No.	Date of Issue:	Date of Issue: EUT Type:				
HCTR1208FR33	August 20, 2012	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC				



OPERATING FREQUENCY:	5,300,000,000 Hz
CHANNEL:	60
REFERENCE VOLTAGE:	3.7 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%		+20(Ref)	5 300 027	27.00
100%		-30	5 300 022	22.02
100%		-20	5 299 980	-20.04
100%		-10	5 300 023	23.46
100%	3.7	0	5 299 973	-26.77
100%		+10	5 300 027	27.49
100%		+30	5 300 022	22.43
100%		+40	5 299 975	-24.52
100%		+50	5 299 978	-21.64
115%	3.3	+20	5 299 976	-23.64
Batt. Endpoint	4.7	+20	5 299 980	-20.04

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				
Test Report No.	Date of Issue:	Date of Issue: EUT Type:				
HCTR1208FR33	August 20, 2012					



OPERATING FREQUENCY:	5,600,000,000 Hz
CHANNEL:	120
REFERENCE VOLTAGE:	3.7 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%		+20(Ref)	5 600 029	29.00
100%		-30	5 599 972	-28.04
100%	3.7	-20	5 600 021	21.47
100%		-10	5 600 026	26.25
100%		0	5 600 025	24.72
100%		+10	5 599 974	-25.60
100%		+30	5 599 976	-24.23
100%		+40	5 600 021	21.05
100%		+50	5 599 980	-20.49
115%	3.3	+20	5 600 020	20.00
Batt. Endpoint	4.7	+20	5 600 020	19.65

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21			
Dec. 1.7.0 -f 000						



8.6 RADIATED MEASUREMENT. 8.6.1 RADIATED SPURIOUS EMISSIONS.

Test Requirements and limit, §15.205, §15.209, §15.407

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

§15.407, KDB 789033

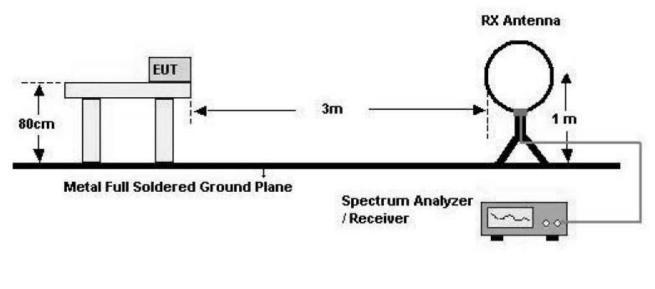
All harmonics that do not lie in a restricted band are subject to a peak limit of -27 dBm/MHz. At a distance of 3 meters the field strength limit in dB μ V/m can be determined by adding a "conversion" factor of 95.2 dB to the EIRP limit of -27 dBm/MHz to obtain the limit for out of band spurious emissions of 68.2 dB μ V/m.

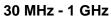
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1208FR33	August 20, 2012	August 20, 2012 GSM/ŴCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYCCDMAPTL			
Base 1.7.0 - (000					

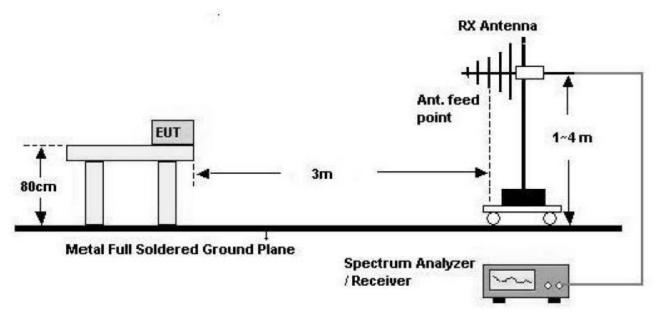


Test Configuration

Below 30 MHz

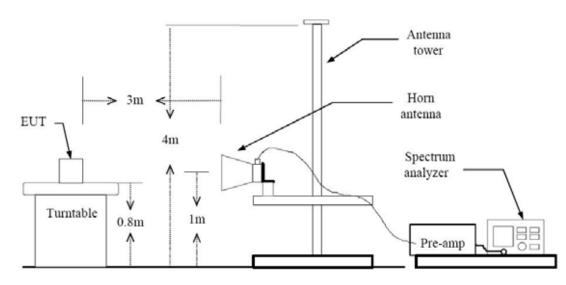






FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
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TEST PROCEDURE

- 1. The EUT is placed on a turntable, which is 0.8 m above ground plane.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until the measurements for all frequencies are complete.

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9 kHz – 30MHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBμN	dB /m	dB	(H/V)	dBµN/m	dBµN/m	dB
No Critical peaks found							

- 1. Measuring frequencies from 9 kHz to the 30MHz.
- 2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
- 3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB)
- 4. Limit line = specific Limits (dBuV) + Distance extrapolation factor
- 5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Below 1 GHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBμN	dB /m	dB	(H/V)	dBµN/m	dBµN/m	dB
No Critical peaks found							

- 1. Measuring frequencies from 30 MHz to the 1 GHz.
- 2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
- 3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21	



Band :	UNII 1	
Operation Mode:	802.11 a	
Transfer Rate:	6 Mbps	
Operating Frequency	5180 MHz	
Channel No.	36 Ch	

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10360	42.74	9.30	V	52.04	68.2	16.16	PK
10360	32.50	9.30	V	41.80	54.0	12.20	AV
15540	43.95	15.04	V	58.99	74.0	15.01	PK
15540	30.82	15.04	V	45.86	54.0	8.14	AV
10360	43.69	9.30	Н	52.99	68.2	15.21	PK
10360	34.80	9.30	Н	44.10	54.0	9.90	AV
15540	44.39	15.04	Н	59.43	74.0	14.57	PK
15540	30.78	15.04	Н	45.82	54.0	8.18	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	



Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10400	42.12	9.60	V	51.72	68.20	16.48	PK
10400	31.22	9.60	V	40.82	54.00	13.18	AV
15600	44.72	14.81	V	59.53	74.00	14.47	PK
15600	30.99	14.81	V	45.80	54.00	8.20	AV
10400	42.27	9.60	Н	51.87	68.20	16.33	PK
10400	33.27	9.60	Н	42.87	54.00	11.13	AV
15600	44.56	14.81	Н	59.37	74.00	14.63	PK
15600	31.00	14.81	Н	45.81	54.00	8.19	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYCCDMAP			



Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10480	42.23	9.83	V	52.06	68.2	16.14	PK
10480	32.65	9.83	V	42.48	54.0	11.52	AV
15720	45.56	14.83	V	60.39	74.0	13.61	PK
15720	32.19	14.83	V	47.02	54.0	6.98	AV
10480	42.07	9.83	Н	51.90	68.2	16.30	PK
10480	32.11	9.83	Н	41.94	54.0	12.06	AV
15720	45.66	14.83	Н	60.49	74.0	13.51	PK
15720	32.20	14.83	Н	47.03	54.0	6.97	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (i.e.: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYCCDMAPTL2			



Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10380	41.45	9.43	V	50.88	68.2	17.32	PK
10380	31.77	9.43	V	41.20	54.0	12.80	AV
15570	44.30	14.93	V	59.23	74.0	14.77	PK
15570	30.87	14.93	V	45.80	54.0	8.20	AV
10380	43.16	9.43	Н	52.59	68.2	15.61	PK
10380	35.88	9.43	Н	45.31	54.0	8.69	AV
15570	45.01	14.93	Н	59.94	74.0	14.06	PK
15570	30.88	14.93	Н	45.81	54.0	8.19	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21



Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10460	42.43	9.72	V	52.15	68.2	16.05	PK
10460	33.85	9.72	V	43.57	54.0	10.43	AV
15690	45.63	14.81	V	60.44	74.0	13.56	PK
15690	32.06	14.81	V	46.87	54.0	7.13	AV
10460	42.74	9.72	Н	52.46	68.2	15.74	PK
10460	34.43	9.72	Н	44.15	54.0	9.85	AV
15690	45.89	14.81	Н	60.70	74.0	13.30	PK
15690	32.09	14.81	Н	46.90	54.0	7.10	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21



Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10520	43.47	9.86	V	53.33	68.2	14.87	PK
10520	34.31	9.86	V	44.17	54.0	9.83	AV
15780	45.88	14.94	V	60.82	74.0	13.18	PK
15780	32.11	14.94	V	47.05	54.0	6.95	AV
10520	43.41	9.86	Н	53.27	68.2	14.93	PK
10520	33.82	9.86	Н	43.68	54.0	10.32	AV
15780	45.72	14.94	Н	60.66	74.0	13.34	PK
15780	32.10	14.94	Н	47.04	54.0	6.96	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JN		JYCCDMAPTL21	



Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10600	43.21	9.350	V	52.56	68.2	15.64	PK
10600	33.97	9.350	V	43.32	54.0	10.68	AV
15900	44.32	14.890	V	59.21	74.0	14.79	PK
15900	30.54	14.890	V	45.43	54.0	8.57	AV
10600	42.11	9.350	Н	51.46	68.2	16.74	PK
10600	31.91	9.350	Н	41.26	54.0	12.74	AV
15900	44.42	14.890	Н	59.31	74.0	14.69	PK
15900	30.54	14.890	Н	45.43	54.0	8.57	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYC		JYCCDMAPTL21
•			



Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10640	43.44	9.46	V	52.90	74	21.10	PK
10640	34.29	9.46	V	43.75	54	10.25	AV
15960	44.01	15.06	V	59.07	74	14.93	PK
15960	30.28	15.06	V	45.34	54	8.66	AV
10640	42.03	9.46	Н	51.49	74	22.51	PK
10640	31.32	9.46	Н	40.78	54	13.22	AV
15960	43.38	15.06	Н	58.44	74	15.56	PK
15960	30.29	15.06	Н	45.35	54	8.65	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYU		JYCCDMAPTL21	



Band :	UNII 2
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5270 MHz
Channel No.	54 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10540	43.14	9.84	V	52.98	68.2	15.22	PK
10540	33.86	9.84	V	43.70	54.0	10.30	AV
15810	44.82	14.93	V	59.75	74.0	14.25	PK
15810	31.70	14.93	V	46.63	54.0	7.37	AV
10540	42.17	9.84	Н	52.01	68.2	16.19	PK
10540	32.39	9.84	Н	42.23	54.0	11.77	AV
15810	45.23	14.93	Н	60.16	74.0	13.84	PK
15810	31.68	14.93	Н	46.61	54.0	7.39	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21



Band :	UNII 2
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
10620	42.96	9.32	V	52.28	68.2	15.92	PK
10620	34.41	9.32	V	43.73	54.0	10.27	AV
15930	44.15	14.98	V	59.13	74.0	14.87	PK
15930	30.33	14.98	V	45.31	54.0	8.69	AV
10620	41.62	9.32	Н	50.94	68.2	17.26	PK
10620	31.46	9.32	Н	40.78	54.0	13.22	AV
15930	44.05	14.98	Н	59.03	74.0	14.97	PK
15930	30.34	14.98	Н	45.32	54.0	8.68	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYCCDMAPTL2		



Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
11000	42.99	10.5	V	53.53	74.0	20.47	PK
11000	34.81	10.5	V	45.35	54.0	8.65	AV
16500	45.36	16.4	V	61.73	68.2	6.47	PK
16500	31.60	16.4	V	47.97	54.0	6.03	AV
11000	42.17	10.5	Н	52.71	74.0	21.29	PK
11000	34.08	10.5	Н	44.62	54.0	9.38	AV
16500	45.23	16.4	Н	61.60	68.2	6.60	PK
16500	31.59	16.4	Н	47.96	54.0	6.04	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21	



Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
11200	41.04	10.16	V	51.20	74.0	22.80	PK
11200	32.02	10.16	V	42.18	54.0	11.82	AV
16800	45.39	18.26	V	63.65	68.2	4.55	PK
16800	31.61	18.26	V	49.87	54.0	4.13	AV
11200	42.02	10.16	Н	52.18	74.0	21.82	PK
11200	33.44	10.16	Н	43.60	54.0	10.40	AV
16800	45.13	18.26	Н	63.39	68.2	4.81	PK
16800	31.63	18.26	Н	49.89	54.0	4.11	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21	



Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5700 MHz
Channel No.	140 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
11400	42.22	10.21	V	52.43	74.0	21.57	PK
11400	33.04	10.21	V	43.25	54.0	10.75	AV
17100	45.05	18.86	V	63.91	68.2	4.29	PK
17100	31.34	18.86	V	50.20	54.0	3.80	AV
11400	41.63	10.21	Н	51.84	74.0	22.16	PK
11400	33.11	10.21	Н	43.32	54.0	10.68	AV
17100	45.01	18.86	Н	63.87	68.2	4.33	PK
17100	31.36	18.86	Н	50.22	54.0	3.78	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		JYCCDMAPTL21	



Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
11020	42.57	10.45	V	53.02	74.0	20.98	PK
11020	35.29	10.45	V	45.74	54.0	8.26	AV
16530	44.93	16.23	V	61.16	68.2	7.04	PK
16530	31.40	16.23	V	47.63	54.0	6.37	AV
11020	41.84	10.45	Н	52.29	74.0	21.71	PK
11020	32.92	10.45	Н	43.37	54.0	10.63	AV
16530	44.61	16.23	Н	60.84	68.2	7.36	PK
16530	31.40	16.23	Н	47.63	54.0	6.37	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYCCE		



Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5590 MHz
Channel No.	118 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
11180	41.07	10.19	V	51.26	74.0	22.74	PK
11180	32.52	10.19	V	42.71	54.0	11.29	AV
16770	45.01	17.3	V	62.31	68.2	5.89	PK
16770	31.63	17.3	V	48.93	54.0	5.07	AV
11180	41.29	10.19	Н	51.48	74.0	22.52	PK
11180	32.96	10.19	Н	43.15	54.0	10.85	AV
16770	45.33	17.3	Н	62.63	68.2	5.57	PK
16770	31.62	17.3	Н	48.92	54.0	5.08	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYCCDM/		



Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5670 MHz
Channel No.	134 Ch

Frequency	Reading	AN.+CL-Amp G.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
11340	41.27	10.3	V	51.57	74.0	22.43	PK
11340	32.46	10.3	V	42.76	54.0	11.24	AV
17010	44.56	18.9	V	63.46	68.2	4.74	PK
17010	31.04	18.9	V	49.94	54.0	4.06	AV
11340	41.00	10.3	Н	51.30	74.0	22.70	PK
11340	32.83	10.3	Н	43.13	54.0	10.87	AV
17010	45.01	18.9	Н	63.91	68.2	4.29	PK
17010	31.06	18.9	Н	49.96	54.0	4.04	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1208FR33	August 20, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC JYCCDM		



8.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS

Test Requirements and limit, §15.247(d) §15.205, §15.209

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 15.205(c)).

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency	Reading	AN.+CL+AMP+ATT.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
5150	61.86	4.18	н	66.04	74	7.96	PK
5150	43.83	4.18	Н	48.01	54	5.99	AV
5150	64.03	4.18	V	68.21	74	5.79	PK
5150	45.85	4.18	V	50.03	54	3.97	AV

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Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency	Reading	AN.+CL+AMP+ATT.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
5350	60.22	4.80	Н	65.02	74	8.98	PK
5350	42.83	4.80	Н	47.63	54	6.37	AV
5350	62.12	4.80	V	66.92	74	7.08	PK
5350	44.93	4.80	V	49.73	54	4.27	AV

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Reading	AN.+CL+AMP+ATT.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
5460	52.03	5.04	Н	57.07	68.2	11.13	PK
5460	36.39	5.04	Н	41.43	54.0	12.57	AV
5460	54.30	5.04	V	59.34	68.2	8.86	PK
5460	37.53	5.04	V	42.57	54.0	11.43	AV

- 1. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain + ATT
- 2. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 3. We have done 802.11a and 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Test Report No.	Date of Issue:	EUT Type:	FCC ID:				
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Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency	Reading	AN.+CL+AMP+ATT.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
5150	63.77	4.18	н	67.95	74	6.05	PK
5150	43.37	4.18	Н	47.55	54	6.45	AV
5150	66.60	4.18	V	70.78	74	3.22	PK
5150	46.80	4.18	V	50.98	54	3.02	AV

Band :	UNII 2
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency	Reading	AN.+CL+AMP+ATT.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
5350	63.29	4.8	Н	68.09	74	5.91	PK
5350	41.39	4.8	Н	46.19	54	7.81	AV
5350	61.71	4.8	V	66.51	74	7.49	PK
5350	43.63	4.8	V	48.43	54	5.57	AV

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Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency	Reading	AN.+CL+AMP+ATT.	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
5460	50.32	5.04	Н	55.36	74	18.64	PK
5460	36.44	5.04	Н	41.48	54	12.52	AV
5460	50.86	5.04	V	55.90	74	18.10	PK
5460	36.50	5.04	V	41.54	54	12.46	AV

- 1. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain + ATT
- 2. Spectrum setting:
 - a. Peak Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
 - b. AV Setting 1 GHz 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 3. We have done all data rate in 802.11n_40 MHz BW mode test. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW.
- 4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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8.7 POWERLINE CONDUCTED EMISSIONS

Test Requirements and limit, §15.207

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

	Limits (dBµV)			
Frequency Range (MHz)	Quasi-peak	Average		
0.15 to 0.50	66 to 56	56 to 46		
0.50 to 5	56	46		
5 to 30	60	50		

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

- 1. The EUT is placed on a wooden table 80 cm above the reference groundplane.
- 2. The EUT is connected via LISN to a test power supply.
- 3. The measurement results are obtained as described below:
- 4. Detectors Quasi Peak and Average Detector.
- 5. We are performed the AC Power Line Conducted Emission test for 6 Mbps, Ch.100 and 802.11a mode in UNII 3. Because 802.11a mode in UNII 3 is worst case.

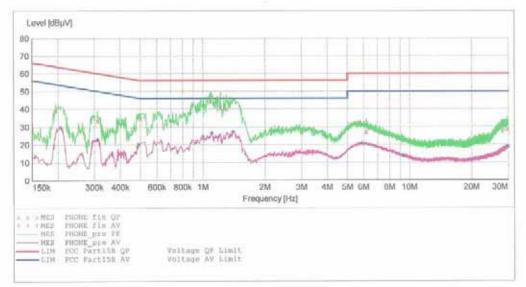
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21	



HCT

EMC	
Manufacturer: Operating Condition: Test Site: Operator: Test Specification:	SHIELD ROOM
SCAN TABLE: "FCC	PART 15 B(H)"

Start	Stop Frequency		FCC PART 15 Detector		IF Bandw.	Transducer
	500.0 kHz		MaxPeak Average	10.0 mu		None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QF"

8/14/2012 12: Frequency Milz	U5PM Level dBµV	Transd dB	Limit dBµV	Margin d8	Line	PE
0.195010	39.10	9.7	64	24.8		
0.310010	33.60	9.7	60	26.3	-	
0.500000	34.60	9.8	56	21.4		
1.092000	44.30	9.0	56	11.7		
1,220000	40.70	9.8	56	15.3		
1,304000	40.40	9.8	56	15.6		
6,160000	27.20	10.2	60	32.8		
28,112000	27.90	12.1	60	32.1		
29,676000	28.80	12.2	60	31.2		-

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HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21
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MEASUREMENT RESULT: "PHONE_fin AV"

8/14/2012	12:05PM					
Frequenc		Transd dB		Margin dB	Line	PE
0.20601	0 29.70	9.7	53	23.7		14.44
0.31101	0 23.00	9.7	50	27.0		
0.48501	0 19.40	9.8	46	26.9		
1.00400	0 24.70	9.0	4 G	21.3		1-1-1-1
1.10800	0 26.70	9.8	46	19.3		
1.40000	0 27.10	9.8	46	18.9		
5,88000	0 20.70	10.2	50	29.3		
9.34400	0 14.00	10.4	50	36.0		
29,98800	0 18.80	12.2	50	31.2		

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FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	
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HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21



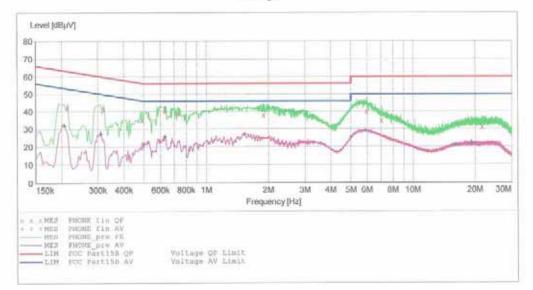
HCT

EMC

Manufacturer: Operating Condition: Test Site: Operator:	SHIELD ROOM JS LEE
Test Specification:	FCC PART 15 CLASS B

SCAN TABLE: "FCC PART 15 B(N)"

Short Desc	riptions	FI	CC PART 15	CLASS B		
Start	Stop	Step	Detector		IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak Average	10.0 ms		None
500.0 kHz		4.0 kHz	MaxPeak Average	10.0 ms		None
5.0 MHz	30.0 MHz	4.0 kHz	MaxFeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

8/14/2012 11						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0,214010	42.00	9.9	63	21.0		
0.318010	41.40	9.9	60	18.3		
0.490010	35.30	10.0	56	20.9		in an a
0,632000	40.20	10.0	56	15.8		
0.728000	38,70	10.0	56	17.3		-
1,900000	38.00	10.1	56	18.0		
5,972000	40.10	10.4	60	19.9		
7.036000	34,70	10.5	60	25.3		
21.656000	31.20	12.2	60	28.8		

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FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT							
Test Report No.	Date of Issue:	EUT Type:	FCC ID:					
HCTR1208FR33	August 20, 2012	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	JYCCDMAPTL21					



MEASUREMENT RESULT: "PHONE_fin AV"

0/14/2012	11:40	MA					
Erequen M	су На	dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.2060	10	31.90	9.9	53	21.5		200
0.3100	10	27.00	9.9	50	22.9		
0.5000	00	21,20	10.0	46	24.8		-
0.6320	00	25.70	10.0	46	20.3		
1.5360	00	27.10	10.1	46	18.9		
5.0000	00	25.20	10.4	46	20.8		-
5,9040	00	29.00	10.4	50	21.0		
16,1200	00	20,90	11.4	50	29.1	30-10-11	
19.0440	00	21.60	11.9	50	28.4		

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Manufaaturar	Madal / Equipment	Calibration	Calibration	Serial No.	
Manufacturer	Model / Equipment	Interval	Due	Senar No.	
Rohde & Schwarz	ENV216/ LISN	Annual	02/09/2013	100073	
Schwarzbeck	VULB 9168/ TRILOG Antenna	Biennial	02/09/2013	200	
Rohde & Schwarz	ESI 40 / EMI TEST RECEIVER	Annual	05/03/2013	831564103	
Agilent	E4440A/ Spectrum Analyzer	Annual	05/02/2013	US45303008	
Agilent	N9020A/ SIGNAL ANALYZER	Annual	07/31/2013	MY51110020	
HD	MA240/ Antenna Position Tower	N/A	N/A	556	
EMCO	1050/ Turn Table	N/A	N/A	114	
HD GmbH	HD 100/ Controller	N/A	N/A	13	
HD GmbH	KMS 560/ SlideBar	N/A	N/A	12	
Rohde & Schwarz	SCU-18/ Signal Conditioning Unit	Annual	09/19/2012	10094	
MITEQ	AMF-6B-180265-35-10P / POWER AMP	Annual	04/16/2013	667624	
CERNEX	CBL26405040 / POWER AMP	Annual	04/16/2013	19660	
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	10/17/2013	937	
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	Biennial	10/26/2012	BBHA9170342	
Rohde & Schwarz	FSP / Spectrum Analyzer	Annual	02/09/2013	839117/011	
Agilent	E4416A /Power Meter	Annual	11/07/2012	GB41291412	
Agilent	E9327A /POWER SENSOR	Annual	05/02/2013	MY4442009	
Wainwright Instrument	WHF3.3/18G-10EF / High Pass Filter	Annual	05/02/2013	1	
Wainwright Instrument	WHNX6.0/26.5G-6SS / High Pass Filter	Annual	05/02/2013	1	
Wainwright Instrument	WHNX7.0/18G-8SS / High Pass Filter	Annual	05/02/2013	29	
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	Annual	05/02/2013	1	
Hewlett Packard	11636B/Power Divider	Annual	11/07/2012	11377	
Hewlett Packard	11667B / Power Splitter	Annual	06/05/2013	05001	
DIGITAL	EP-3010 /DC POWER SUPPLY	Annual	11/07/2012	3110117	
ITECH	IT6720 / DC POWER SUPPLY	Annual	11/07/2012	010002156287001199	
TESCOM	TC-3000C / BLUETOOTH TESTER	Annual	11/14/2012	3000C000276	
Rohde & Schwarz	CBT / BLUETOOTH TESTER	Annual	05/02/2013	100422	
EMCO	6502.LOOP ANTENNA	Biennial	01/11/2014	9009-2536	
MITEQ	AMF-6D-001180-35-20P/ POWER AMP	Annual	07/30/2013	990893	
Agilent	8493C / Attenuator(10 dB)	Annual	07/30/2013	76649	
WEINSCHEL	2-3 / Attenuator(3 dB)	Annual	11/07/2013	BR0617	
CERNEX	CBLU1183540 / POWER AMP	Annual	07/27/2013	21691	

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