

Certificate No.: CB10202029

FCC and IC Radio Test Report

Equipment : Cisco Aironet 700 Series Access Point

Brand Name : CISCO

Model No. : AIR-CAP702I-A-K9, AIR-SAP702I-A-K9,

AIR-CAP7021-N-K9, AIR-SAP7021-N-K9, AIR-CAP7021-Z-K9, AIR-SAP7021-Z-K9

FCC ID : LDK102085

IC : 2461B-102085

Standard : 47 CFR FCC Part 15.247

IC RSS-210 Issue 8 and RSS-Gen Issue 3

Frequency Range : 5725 MHz - 5850 MHz

Equipment Class : DTS

Applicant : CISCO System, Inc.

170 West Tasman Drive San Jose, CA

95134-1706

Manufacturer : Wistron NeWeb Corporation

20 Park Avenue II, Hsinchu Science Park.

Hsinchu 308, Taiwan, R.O.C.

The product sample received on Oct. 05, 2012 and completely tested on Apr. 12, 2013. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Jordan Hsiao

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Summary of Test Result

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			Conformar	nce Test Specifications		
Report Clause	FCC Std. Clause	IC Std. Clause	Description	Measured	Limit	Result
1.1.2	15.203	-	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	RSS-Gen 7.2.4	AC Power-line Conducted Emissions	[dBuV]: 21.169MHz 38.62 (Margin 11.38dB) - AV 40.70 (Margin 19.30dB) - QP	FCC 15.207 / RSS-Gen 7.2.4	Complied
3.2	15.247(a)	RSS-210 A8.2	6dB Bandwidth	6dB Bandwidth Unit [MHz] 20M: 17.76 / 40M: 36.48	≥500kHz	Complied
3.3	15.247	RSS-210	26dB Bandwidth	Bandwidth [MHz] 20M:26.41 / 40M:49.12	Information only	Complied
3.4	15.247(b)	RSS-210 A8.4	RF Output Power (Maximum Conducted Output Power)	Power [dBm] 20M:20.64 / 40M:20.73	Power [dBm]:30	Complied
3.5	15.247(d)	RSS-210 A8.2	Power Spectral Density	PSD [dBm/3kHz] 20M: -4.28 / 40M:-7.74	PSD [dBm/3kHz]:8	Complied
3.6	15.247(c)	RSS-210 A8.5	Transmitter Conducted Unwanted Emissions	38.75 (Margin 8.75dB)	Non-Restricted Bands: > 30 dBc	Complied
3.7	15.247(c)	RSS-210 A8.5	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 3m]: 41.09MHz 36.65 (Margin 3.35dB) - QP	Restricted Bands: FCC 15.209 / RSS-Gen 7.2.5	Complied

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Revision History

Report No.	Version	Description	Issued Date
FR281405-03AB	Rev. 01	Initial issue of report	Apr. 17, 2013

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1 General Description

1.1 Information

1.1.1 RF General Information

	RF General Information									
Frequency Range (MHz)	Operating Mode	Ch. Freq. (MHz)	Channel Number	Co-location						
5725-5850	Non HT-20, 6 to 54Mbps	5745-5825	149-165 [5]	Yes						
5725-5850	Non HT-20, Beam Forming, 6 to 54Mbps	5745-5825	149-165 [5]	Yes						
5725-5850	HT-20, M0 to M15	5745-5825	149-165 [5]	Yes						
5725-5850	HT-20, STBC, M0 to M7	5745-5825	149-165 [5]	Yes						
5725-5850	HT-20, Beam Forming, M0 to M7	5745-5825	149-165 [5]	Yes						
5725-5850	HT-20, Beam Forming, M8 to M15	5745-5825	149-165 [5]	Yes						
5725-5850	HT-40, M0 to M15	5755-5795	151-159 [2]	Yes						
5725-5850	HT-40, STBC, M0 to M7	5755-5795	151-159 [2]	Yes						
5725-5850	HT-40, Beam Forming, M0 to M7	5755-5795	151-159 [2]	Yes						
5725-5850	HT-40, Beam Forming, M8 to M15	5755-5795	151-159 [2]	Yes						

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1.1.2 Antenna Information

Ant.	Brand	Model Name Antenna Typ		Connector	Gain (dBi)
1	WNC	WNC PIFA Antenna		I-PEX	5
2	WNC	WNC	PIFA Antenna	I-PEX	5

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Note 1: RF output power specifies that Maximum Conducted Output Power.

Note 2: Non HT-20 / HT-20 / HT-40 uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

Note 3: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)



1.1.3 EUT Description

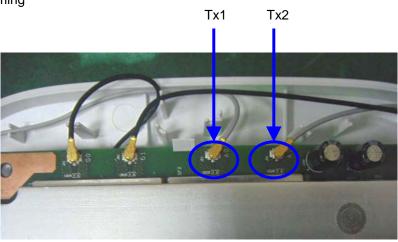
Operating Non HT-20 Mode 6 to 54Mbps		Non HT-20 BF 6 to 54Mbps			HT-20 M0 to M15		HT-20 STBC M0 to M7		HT-20BF M0 to M7		HT-20 BF M8 to M15	
Tx	1	2	1	2	1	2	1	2	1	2	1	2
Single (Tx)	V	-	-	-	٧	-	-	-	-	-	-	-
Two (Tx)	V	V	V	V	٧	V	V	V	V	V	V	V

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Note: BF: Beam Forming

Operating Mode			HT-40 STBC M0 to M7		HT-40 BF M0 to M7		HT-40 BF M8 to M15	
Tx	1	2	1	2	1	2	1	2
Single (Tx)	V	-	-	-	-	-	-	-
Two (Tx)	V	V	٧	V	V	V	V	V

Note: BF: Beam Forming



1.1.4 Type of EUT

	Identify EUT							
EU	Γ Serial Number	N/A						
Pre	sentation of Equipment	☐ Production; ☐ Prototype						
	EUT has six model name tegy.	s. All the models are identical; the different model names served as marketing						
	Type of EUT							
\boxtimes	Stand-alone							
	Combined (EUT where the	e radio part is fully integrated within another device)						
	Combined Equipment - Brand Name / Model No.:							
	Plug-in radio (EUT intended for a variety of host systems)							
	Host System - Brand Name / Model No.:							
	Other:							

1.1.5 EUT Operational Condition

EUT Power Type	From Power Adapter / POE
7 1	·

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1.2 Accessories

	Accessories									
No.	Equipment Name	Brand Name	Model Name	Rating	Remark					
1	AC Adapter	CISCO	AA25480L	INPUT: 100-240V ~ 600mA, 50/60Hz OUTPUT: 48V, 380mA	With power cable					
2	AC Adapter	CISCO	EADP-18MB B	INPUT: 100-240V ~ 0.5A, 50-60Hz OUTPUT: 48V, 0.38A	With power cable					

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1.3 Support Equipment

	Support Equipment									
No.	Equipment	Model Name	FCC ID							
1	Notebook	DELL	M1330	E2KWM3945ABG						
2	Notebook	DELL	E6220	E2KWM3945ABG						
3	Notebook	DELL	E6220	E2KWM3945ABG						
4	Notebook	DELL	E6400	E2KWM3945ABG						
5	POE	CISCO	DPSN-35FB A	N/A						
6	POE	CISCO	POE30U-560(G)	N/A						
7	POE Switch	MOTOROLA	RFS-4010	N/A						

1.4 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2009
- FCC KDB 558074
- FCC KDB 662911
- FCC KDB 412172

1.5 Testing Location Information

Testing Location									
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., K	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.					
	TEL	:	886-3-327-3456 FA	X : 886-3-318-0055					
JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St.,	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.					
	TEL	:	886-3-656-9065 FA	X : 886-3-656-9085					
Test Condition			Test Site No.	Test Engineer	Test Environment				
RF Condu	cted		TH01-CB	Satoshi Yang	24°C / 60%				
AC Conduction			CO01-CB	Sollo Luo	24°C / 64%				
Radiated Em	nission		03CH01-CB	Satoshi Yang	24°C / 60%				

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1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

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1	Measurement Uncertainty	1	
Test Item	Uncertainty	Limit	
AC power-line conducted emissions		±2.26 dB	N/A
Emission bandwidth, 6dB bandwidth		±1.42 %	N/A
RF output power, conducted		±0.63 dB	N/A
Power density, conducted		±0.81 dB	N/A
Unwanted emissions, conducted	30 – 1000 MHz	±0.51 dB	N/A
	1 – 18 GHz	±0.67 dB	N/A
	18 – 40 GHz	±0.83 dB	N/A
	40 – 200 GHz	N/A	N/A
All emissions, radiated	30 – 1000 MHz	±2.56 dB	N/A
	1 – 18 GHz	±3.59 dB	N/A
	18 – 40 GHz	±3.82 dB	N/A
	40 – 200 GHz	N/A	N/A
Temperature		±0.8 °C	N/A
Humidity		±3 %	N/A
DC and low frequency voltages	±3 %	N/A	
Time		±1.42 %	N/A
Duty Cycle		±1.42 %	N/A

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2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing					
Worst Data Rate / MCS					
6Mbps					
6Mbps					
6.5Mbps (M0)					
6.5Mbps (M0)					
6.5Mbps (M0)					
13Mbps (M8)					
13.5Mbps (M0)					
13.5Mbps (M0)					
13.5Mbps (M0)					
27Mbps (M8)					

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2.2 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration					
Operating Mode	Test Channel Frequencies (MHz)				
Non HT-20, 6 to 54Mbps					
Non HT-20, Beam Forming, 6 to 54Mbps					
HT-20, M0 to M15	5745 5785 5825				
HT-20, STBC, M0 to M7	5745, 5785, 5825				
HT-20, Beam Forming, M0 to M7					
HT-20, Beam Forming, M8 to M15	7				
HT-40, M0 to M15					
HT-40, STBC, M0 to M7	- - 				
HT-40, Beam Forming, M0 to M7	- 5755, 5795				
HT-40, Beam Forming, M8 to M15					

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Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40. Worst modulation mode of Guard Interval (GI) is 400ns.

Note 2: Modulation modes consist below configuration:

M: Modulation and Coding Scheme

Note 3: RF output power specifies that Maximum Conducted Output Power.



2.3 The Worst Case Power Setting Parameter

The Worst Ca	ase Pov	wer Setting	g Paramet	er				
Test Software Version	ART 2	2 GUI:2.3						
		Test Frequency (MHz)						
Operating Mode	N _{TX}	N	ICB: 20MF	lz	NCB:	40MHz		
		5745	5785	5825	5755	5795		
Non HT-20, 6 to 54Mbps	2	16.5	17	17.5	-	-		
Non HT-20, Beam Forming, 6 to 54Mbps	2	16.5	17	17.5	-	-		
HT-20, M0 to M15 / HT-20, STBC, M0 to M7	2	17	17	17.5	-	-		
HT-20, Beam Forming, M0 to M7	2	17	17	17.5	-	-		
HT-20, Beam Forming, M8 to M15	2	17	17	17.5	-	-		
HT-40, M0 to M15 / HT-40, STBC, M0 to M7	2	-	-	-	17	17.5		
HT-40, Beam Forming, M0 to M7	2	-	-	-	17	17.5		
HT-40, Beam Forming, M8 to M15	2	-	-	-	17	17.5		

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2.4 Target Maximum Channel Power

		Target Maximu	m Channel Powe	r (dBm)		
Operating Mode	N _{TX}	Frequency (MHz)				
Operating mode	ТТХ	5745	5785	5825		
Non HT-20, 6 to 54Mbps	2	20.39	20.60	20.51		
Non HT-20, Beam Forming, 6 to 54Mbps	2	20.39	20.60	20.51		
HT-20, M0 to M15 / HT-20, STBC, M0 to M7	2	20.46	20.64	20.28		
HT-20, Beam Forming, M0 to M7	2	20.46	20.64	20.28		
HT-20, Beam Forming, M8 to M15		20.46	20.52	20.45		
		5755	5795			
HT-40, M0 to M15 / HT-40, STBC, M0 to M7	2	20.53	20.73			
HT-40, Beam Forming, M0 to M7	2	20.53	20.73			
HT-40, Beam Forming, M8 to M15	2	20.30	20.60			

2.5 EUT Operation during Test

During the test, "ART 2 GUI:2.3" under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

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2.6 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests							
Tests Item	Tests Item AC power-line conducted emissions						
Test Condition	Test Condition AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz						
Test Mode	Normal Link						
1	1 EUT with AC Adapter 1 (CISCO AA25480L)						
2	2 EUT with AC Adapter 2 (CISCO EADP-18MB B)						
For test mode 2 is the worst case and it was record in this test report.							

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Th	The Worst Case Mode for Following Conformance Tests						
Tests Item	ests Item 6 dB Bandwidth						
	26 dB Bandwidth						
	RF Output Power						
	Power Spectral Density						
	Transmitter Conducted Bandedge Emissions						
	Fransmitter Conducted Unwanted Emissions						
Test Condition	Conducted measurement at transmit chains						
Operating Mode	Non HT-20 / Non HT-20, Beam Forming / HT-20 / HT-20, STBC / HT-20, Beam Forming / HT-40 / HT-40, STBC / HT-40, Beam Forming						

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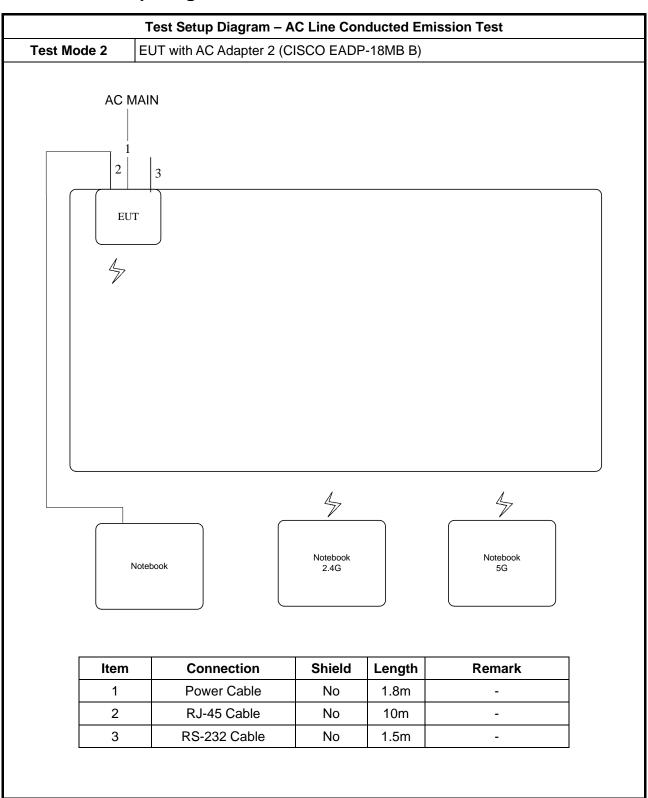
The Worst Case Mode for Following Conformance Tests							
Tests Item	Tests Item Transmitter Radiated Unwanted Emissions						
Test Condition	Radiated measurement						
Test Mode < 1GHz	Normal Link						
1	Stand-up of EUT with AC Adapter 1 (CISCO AA25480L)						
2	Laying-flat of EUT with AC Adapter 1 (CISCO AA25480L)						
Mode 1 has been evaluate	ed to be the worst case, thus measurement will follow this same test mode.						
3	Stand-up of EUT with AC Adapter 2 (CISCO EADP-18MB B)						
4	Stand-up of EUT with POE 1 (CISCO DPSN-35FB A)						
5	Stand-up of EUT with POE 2 (CISCO POE30U-560(G))						
6	6 Stand-up of EUT with POE Switch (MOTOROLA RFS-4010)						
For test mode 4 is the wor	st case and it was record in this test report.						
Operating Mode Non HT-20 / Non HT-20, Beam Forming / HT-20 / HT-20, STBC / HT-20, Beam Forming / HT-40 / HT-40, STBC / HT-40, Beam Forming							
Test Mode > 1GHz	Continuously transmit RF signal						
1	Stand-up of EUT						
2	Laying-flat of EUT						
For test mode 2 is the wor	st case and it was record in this test report.						

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2.7 Test Setup Diagram



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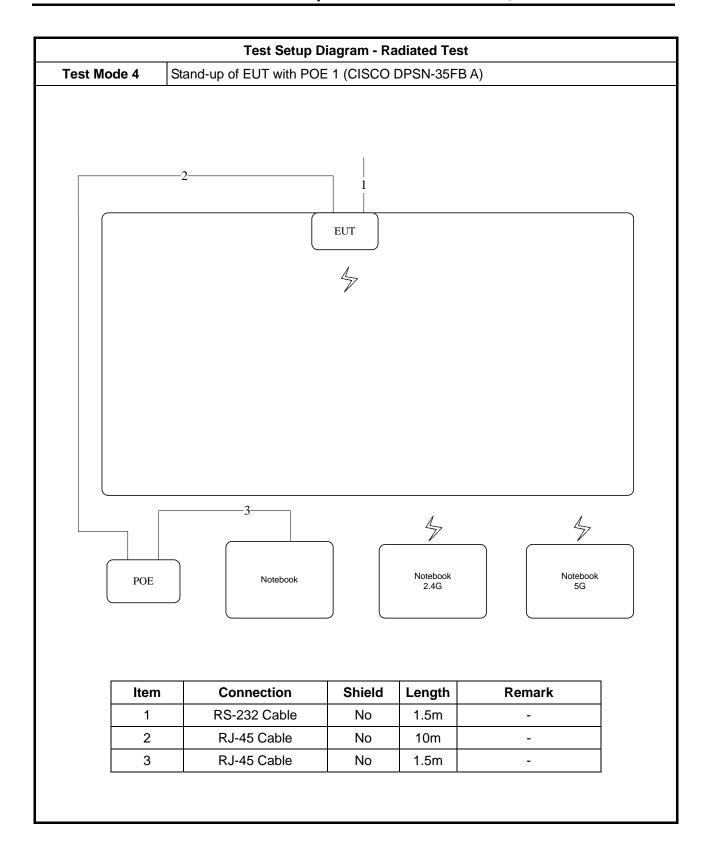
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3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit							
Frequency Emission (MHz)	Quasi-Peak	Average					
0.15-0.5	66 - 56 *	56 - 46 *					
0.5-5	56	46					
5-30	60	50					

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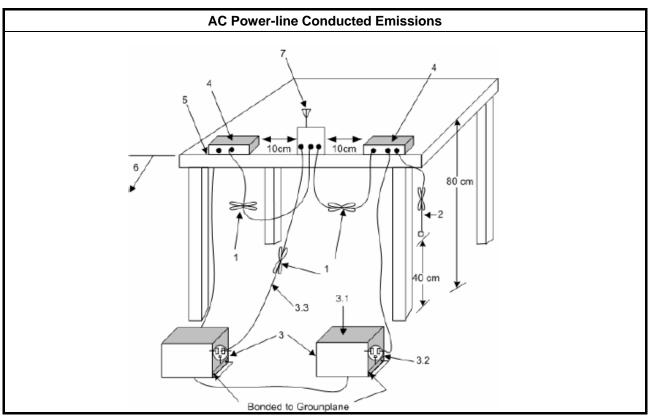
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

	Test Method
\boxtimes	Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions.

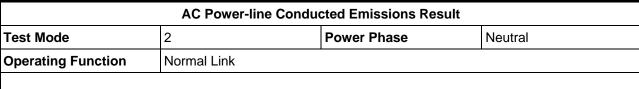
3.1.4 Test Setup



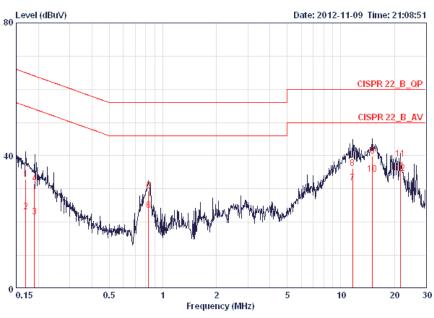
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3.1.5 Test Result of AC Power-line Conducted Emissions



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	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.16944	32.98	-32.01	64.99	32.70	0.08	0.20	NEUTRAL	QP
2	0.16944	23.05	-31.94	54.99	22.77	0.08	0.20	NEUTRAL	AVERAGE
3	0.18959	21.48	-32.57	54.05	21.20	0.08	0.20	NEUTRAL	AVERAGE
4	0.18959	31.50	-32.55	64.05	31.22	0.08	0.20	NEUTRAL	QP
5	0.83047	29.50	-26.50	56.00	29.21	0.09	0.20	NEUTRAL	QP
6	0.83047	23.49	-22.51	46.00	23.20	0.09	0.20	NEUTRAL	AVERAGE
7	11.621	31.73	-18.27	50.00	31.07	0.26	0.40	NEUTRAL	AVERAGE
8	11.621	36.29	-23.71	60.00	35.63	0.26	0.40	NEUTRAL	QP
9	15.066	39.92	-20.08	60.00	39.20	0.32	0.40	NEUTRAL	QP
10	15.066	34.55	-15.45	50.00	33.83	0.32	0.40	NEUTRAL	AVERAGE
11	21.662	38.91	-21.09	60.00	37.99	0.42	0.50	NEUTRAL	QP
12	21.662	34.57	-15.43	50.00	33.65	0.42	0.50	NEUTRAL	AVERAGE

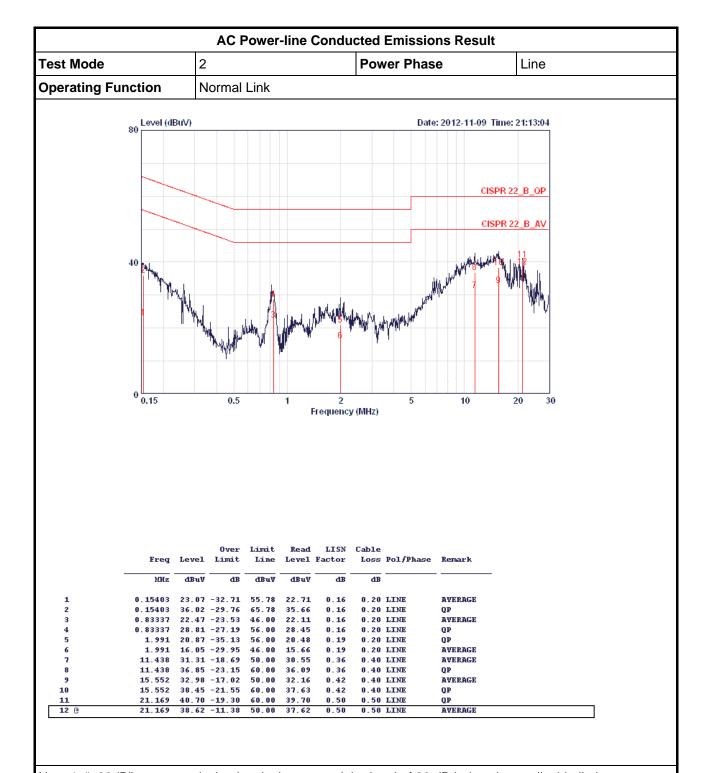
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

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Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

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3.2 6dB Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
6 dB bandwidth ≥ 500 kHz.

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3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

		Test Method		
\boxtimes	For the emission bandwidth shall be measured using one of the options below:			
	\boxtimes	Refer as FCC KDB 558074, clause 7.1 Option 1 for 6 dB bandwidth measurement.		
		Refer as FCC KDB 558074, clause 7.2 Option 2 for 6 dB bandwidth measurement.		
		Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.		

3.2.4 Test Setup

Emission Bandwidth EUT Spectrum Analyzer	
	Emission Bandwidth

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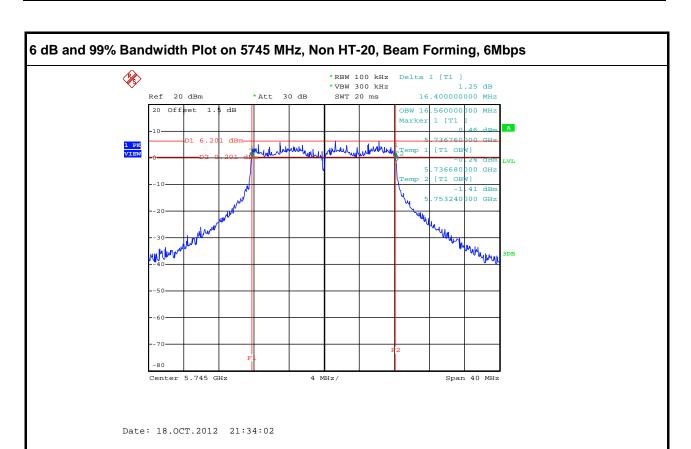
3.2.5 Test Result of Emission Bandwidth

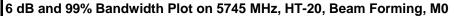
Freq.		Data Rate	99% BW	6dB BW	Limit	Margin
(MHz)	Operating Mode	(Mbps)	(MHz)	(MHz)	(kHz)	(MHz)
	Non HT-20, Beam Forming, 6 to 54Mbps	6	16.56	16.4	>500	15.9
5745	HT-20, Beam Forming, M0 to M7	MO	17.84	17.6	>500	17.1
	HT-20, Beam Forming, M8 to M15	M8	17.84	17.76	>500	17.26
	Non HT-20, Beam Forming, 6 to 54Mbps	6	16.56	16.4	>500	15.9
5785	HT-20, Beam Forming, M0 to M7	MO	17.84	17.6	>500	17.1
	HT-20, Beam Forming, M8 to M15	M8	17.84	17.68	>500	17.18
	Non HT-20, Beam Forming, 6 to 54Mbps	6	16.64	16.32	>500	15.82
5825	HT-20, Beam Forming, M0 to M7	MO	17.84	17.68	>500	17.18
	HT-20, Beam Forming, M8 to M15	M8	17.84	17.6	>500	17.1
5755	HT-40, Beam Forming, M0 to M7	MO	36.48	36.48	>500	35.98
3733	HT-40, Beam Forming, M8 to M15	M8	36.48	36.48	>500	35.98
5795	HT-40, Beam Forming, M0 to M7	MO	36.32	35.84	>500	35.34
3133	HT-40, Beam Forming, M8 to M15	M8	36.48	36.48	>500	35.98

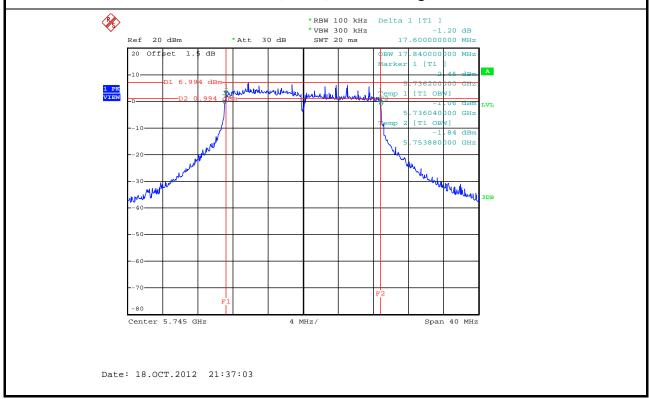
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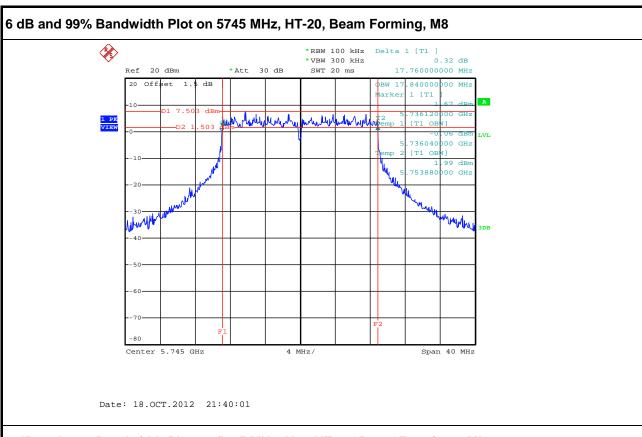




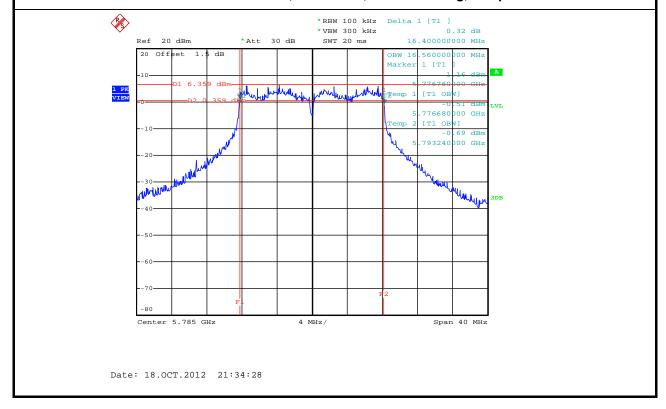


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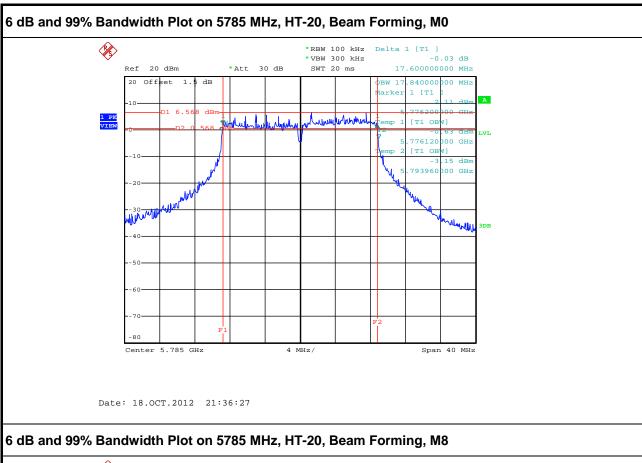


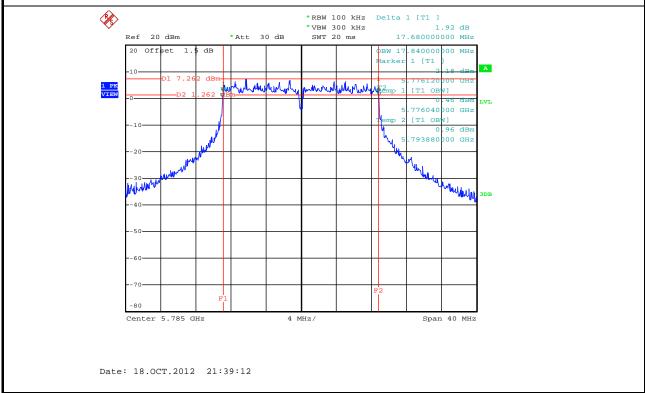
6 dB and 99% Bandwidth Plot on 5785 MHz, Non HT-20, Beam Forming, 6Mbps



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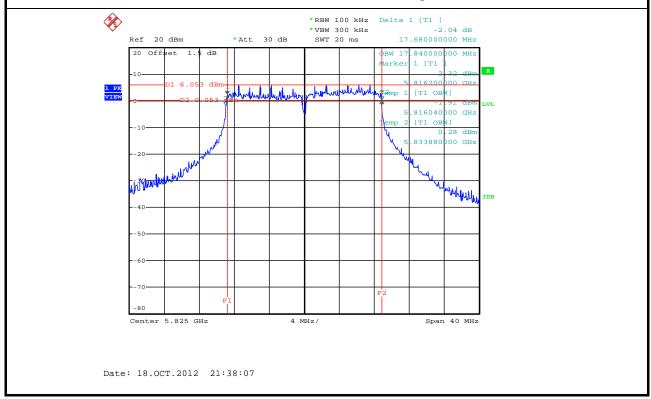


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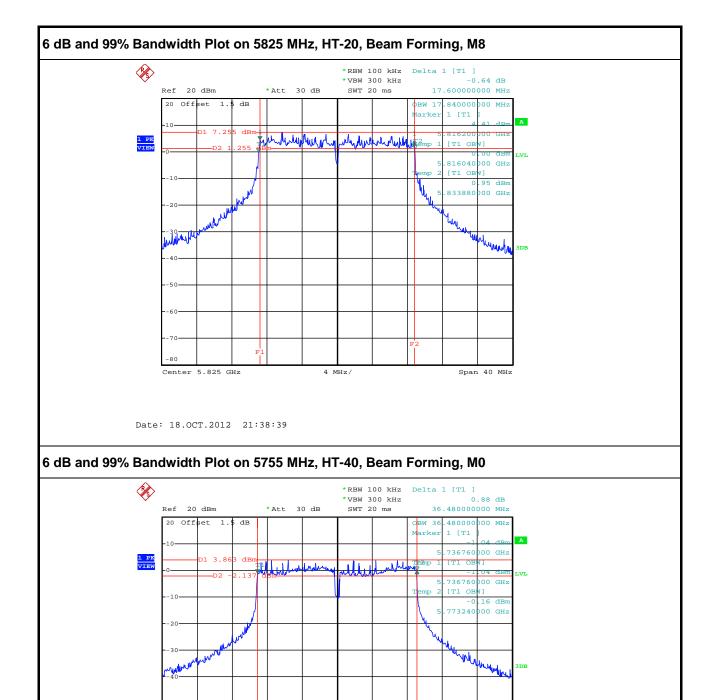






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8 MHz/

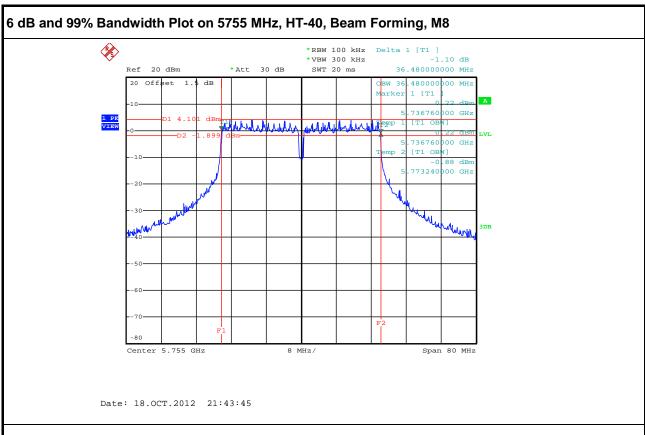
Span 80 MHz

FAX: 886-3-3270973

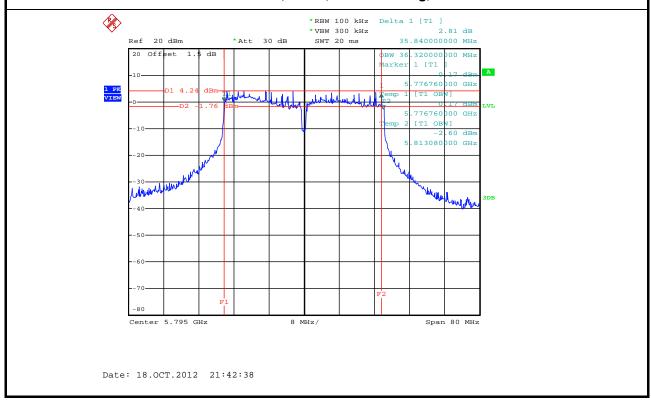
Center 5.755 GHz

Date: 18.OCT.2012 21:42:09

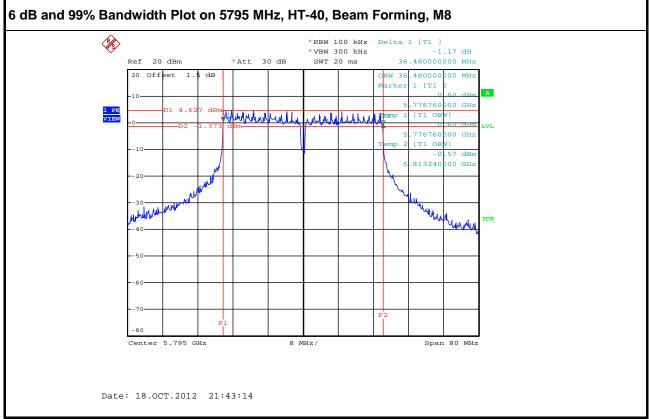








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3.3 26dB Bandwidth

3.3.1 Measuring Instruments

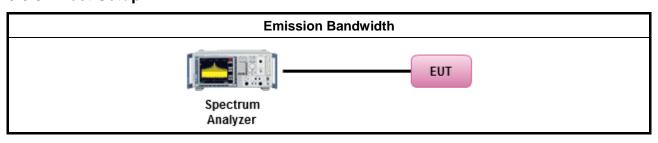
Refer a test equipment and calibration data table in this test report.

3.3.2 Test Procedures

Test Method					
For the emission bandwidth shall be measured using below:					
Center Frequency	: Frequency from table below				
Span	: 2 x Nominal Bandwidth (e.g. 40MHz for a 20MHz channel)				
Reference Level	: 20 dBm				
Attenuation	: 10 dB				
Sweep Time	: 5s				
Resolution Bandwidth	: 1%-3% of 26 dB Bandwidth				
Video Bandwidth	: ≥Resolution Bandwidth				
X dB Bandwidth	: 26 dB				
Detector	: Peak				
Trace	: Single				

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3.3.3 Test Setup



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3.3.4 Test Result of Emission Bandwidth

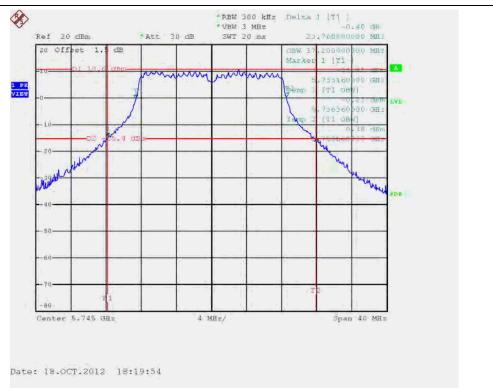
Freq.		Data Rate	99% BW	26dB BW
(MHz)	Operating Mode	(Mbps)	(MHz)	(MHz)
	Non HT-20, 6 to 54Mbps	6	17.2	23.76
5745	Non HT-20, Beam Forming, 6 to 54Mbps	6	17.2	23.76
5745	HT-20, Beam Forming, M0 to M7	MO	18.72	25.68
	HT-20, Beam Forming, M8 to M15	M8	18.4	25.2
	Non HT-20, 6 to 54Mbps	6	17.04	23.76
5785	Non HT-20, Beam Forming, 6 to 54Mbps	6	17.04	23.76
5765	HT-20, Beam Forming, M0 to M7	MO	18.8	26.4
	HT-20, Beam Forming, M8 to M15	M8	18.48	24.88
	Non HT-20, 6 to 54Mbps	6	17.28	23.52
5825	Non HT-20, Beam Forming, 6 to 54Mbps	6	17.28	23.52
3623	HT-20, Beam Forming, M0 to M7	MO	18.88	26.08
	HT-20, Beam Forming, M8 to M15	M8	18.4	24.96
	HT-40, STBC, M0 to M7	MO	36.96	48.64
5755	HT-40, Beam Forming, M0 to M7	MO	36.96	48.64
	HT-40, Beam Forming, M8 to M15	M8	36.8	47.36
	HT-40, STBC, M0 to M7	MO	37.12	49.12
5795	HT-40, Beam Forming, M0 to M7	MO	37.12	49.12
	HT-40, Beam Forming, M8 to M15	M8	36.64	46.72

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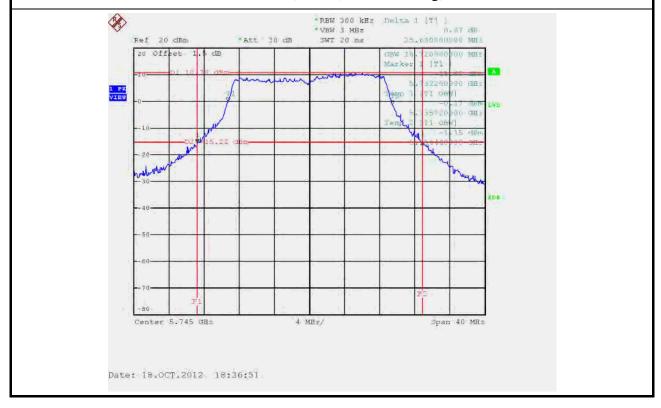
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26 dB and 99% Bandwidth Plot on 5745 MHz, HT-20, Beam Forming, M0

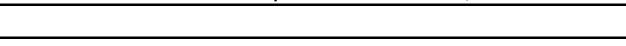


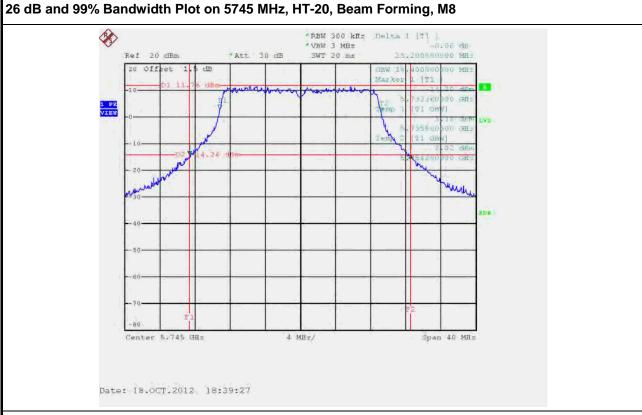
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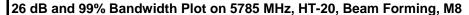
26 dB and 99% Bandwidth Plot on 5785 MHz, Non HT-20 / Non HT-20, Beam Forming, 6Mbps

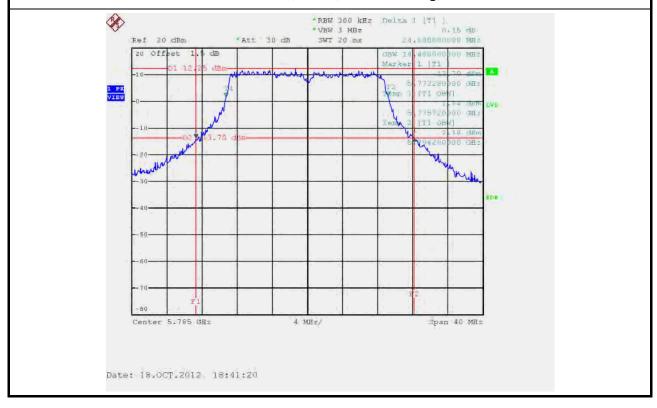


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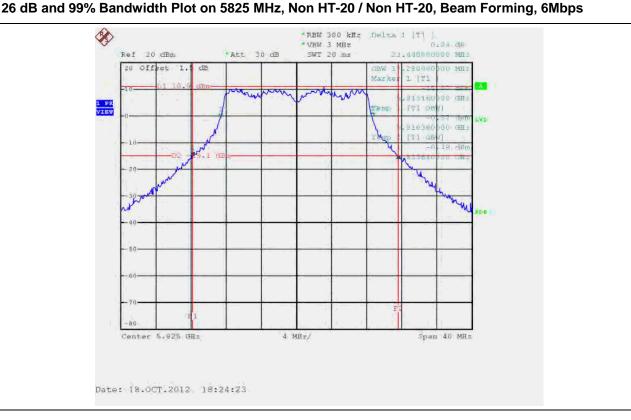




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26 dB and 99% Bandwidth Plot on 5825 MHz, HT-20, Beam Forming, M0

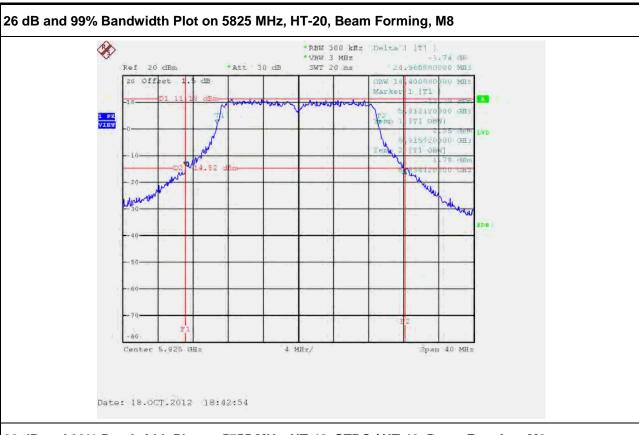


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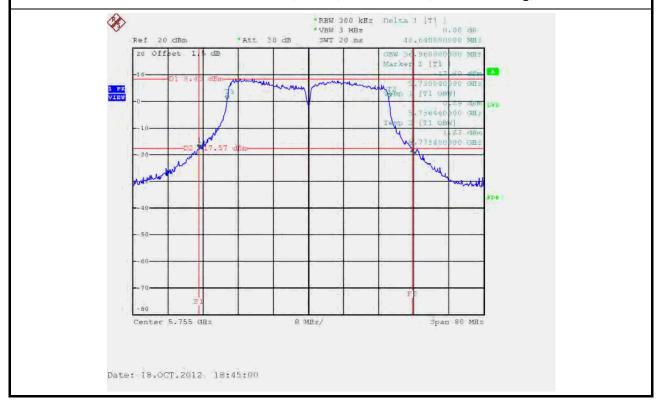
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26 dB and 99% Bandwidth Plot on 5755 MHz, HT-40, STBC / HT-40, Beam Forming, M0

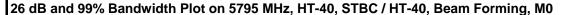


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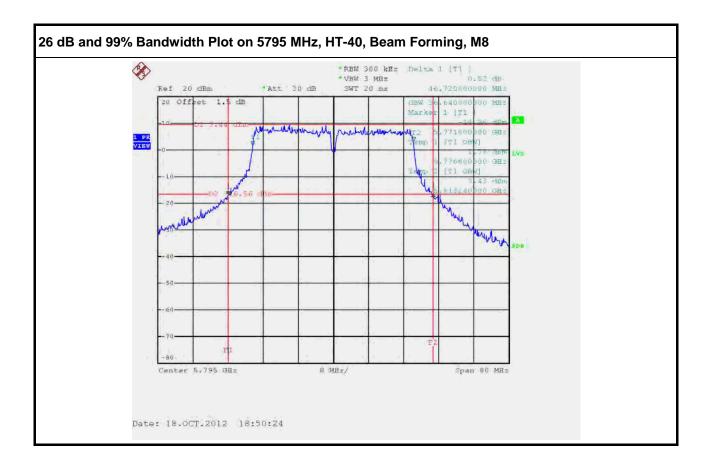
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3.4 RF Output Power

3.4.1 RF Output Power Limit

	RF Output Power Limit			
Max	imu	m Conducted Output Power Limit		
\boxtimes	240	0-2483.5 MHz Band:		
	\boxtimes	If $G_{TX} \le 6$ dBi, then $P_{Out} \le 30$ dBm (1 W)		
	\boxtimes	Point-to-multipoint systems (P to M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm		
		Point-to-point systems (P to P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm		
		Smart antenna system (SAS):		
		Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm		
		Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm		
		Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm		
	$\mathbf{P_{out}}$ = maximum conducted output power in dBm, $\mathbf{G_{TX}}$ = the maximum transmitting antenna directional gain in dBi.			

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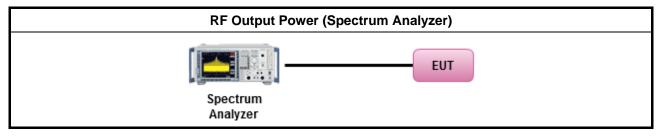
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

	Test Method				
\boxtimes	Max	imum Conducted Output Power			
	\boxtimes	Refer as FCC KDB 558074, clause 8.2.1 Option 1 (spectral trace averaging).			
		Refer as FCC KDB 558074, clause 8.2.2 Option 2 (slow sweep speed).			
		Refer as FCC KDB 558074, clause 8.2.3 Option 3 (average power meter).			
\boxtimes	For	conducted measurement.			
		The EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.			

3.4.4 Test Setup



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3.4.5 Test Result of Maximum Conducted Output Power

Freq.	Operating Mode	N _{TX}	Correlated Antenna Gain (dBi)	Output Power	Tx2 Output Power (dBm)	Total Tx Channel Power (dBm)		Margin (dB)
(IVITIZ)	Non HT-20, 6 to 54Mbps	2	5.00	17.66	17.07	20.39	30.00	9.61
	Non HT-20, 8 to 54Mbps Non HT-20, Beam Forming, 6 to 54Mbps	2	8.01	17.66	17.07	20.39	27.99	7.60
	HT-20, M0 to M15	2	5.00	17.83	17.03	20.46	30.00	9.54
5745	HT-20, STBC, M0 to M7	2	5.00	17.83	17.03	20.46	30.00	9.54
	HT-20, Beam Forming, M0 to M7	2	8.01	17.83	17.03	20.46	27.99	7.53
	HT-20, Beam Forming, M8 to M15	2	5.00	17.84	17.01	20.46	30.00	9.54
	, , , , , , , , , , , , , , , , , , ,		0.00					
	Non HT-20, 6 to 54Mbps	2	5.00	17.92	17.23	20.60	30.00	9.40
	Non HT-20, Beam Forming, 6 to 54Mbps	2	8.01	17.92	17.23	20.60	27.99	7.39
5785	HT-20, M0 to M15	2	5.00	17.96	17.28	20.64	30.00	9.36
5765	HT-20, STBC, M0 to M7	2	5.00	17.96	17.28	20.64	30.00	9.36
	HT-20, Beam Forming, M0 to M7	2	8.01	17.96	17.28	20.64	27.99	7.35
	HT-20, Beam Forming, M8 to M15	2	5.00	17.95	17.01	20.52	30.00	9.48
			•	•	-	-		
	Non HT-20, 6 to 54Mbps	2	5.00	18.00	16.94	20.51	30.00	9.49
	Non HT-20, Beam Forming, 6 to 54Mbps	2	8.01	18.00	16.94	20.51	27.99	7.48
5825	HT-20, M0 to M15	2	5.00	17.52	17.00	20.28	30.00	9.72
3023	HT-20, STBC, M0 to M7	2	5.00	17.52	17.00	20.28	30.00	9.72
	HT-20, Beam Forming, M0 to M7	2	8.01	17.52	17.00	20.28	27.99	7.71
	HT-20, Beam Forming, M8 to M15	2	5.00	17.79	17.05	20.45	30.00	9.55
	HT-40, M0 to M15	2	5.00	17.91	17.1	20.53	30.00	9.47
5755	HT-40, STBC, M0 to M7	2	5.00	17.91	17.1	20.53	30.00	9.47
3733	HT-40, Beam Forming, M0 to M7	2	8.01	17.91	17.1	20.53	27.99	7.46
	HT-40, Beam Forming, M8 to M15	2	5.00	17.64	16.9	20.30	30.00	9.70
	HT-40, M0 to M15	2	5.00	18.26	17.1	20.73	30.00	9.27
5795	HT-40, STBC, M0 to M7	2	5.00	18.26	17.1	20.73	30.00	9.27
0.00	HT-40, Beam Forming, M0 to M7	2	8.01	18.26	17.1	20.73	27.99	7.26
	HT-40, Beam Forming, M8 to M15	2	5.00	18.10	17.00	20.60	30.00	9.40

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Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows: Any transmit signals are correlated, Directional Gain = G_{ANT} + 10 log(N_{TX}) All transmit signals are completely uncorrelated, Directional Gain = G_{ANT}

Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows:

Any transmit signals are correlated, Directional Gain =10 log[(10^{G1/20} +... + 10^{GN/20})² /N_{TX}]

All transmit signals are completely uncorrelated, Directional Gain = 10 log[(10^{G1/10} +... + 10^{GN/10})/N_{TX}]

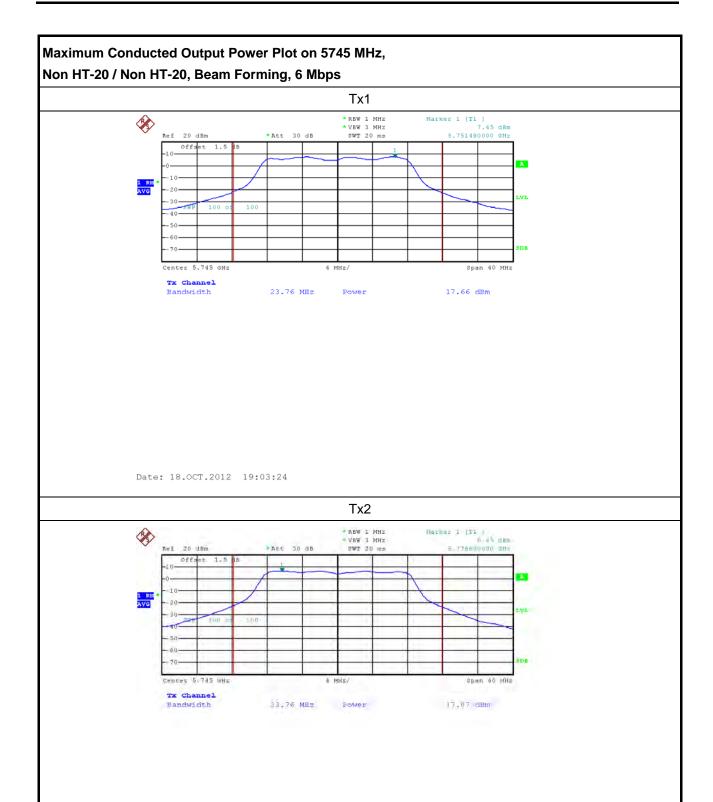
Note 3: For Spatial Multiplexing, Directional Gain (DG) = G_{ANT} + 10 log(N_{TX}/N_{SS}), where Nss = the number of independent spatial streams data.

Note 4: For CDD transmissions, directional gain is calculated as power measurements: Directional Gain (DG) = G_{ANT} + Array Gain, where Array Gain is as follows: Array Gain = 0 dB (i.e., no array gain) for $N_{TX} \le 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{TX}

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Date: 18.OCT.2012 19:02:35

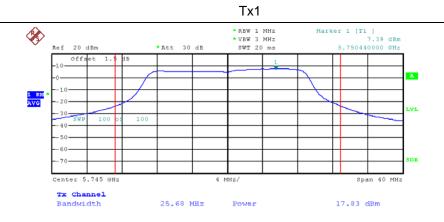
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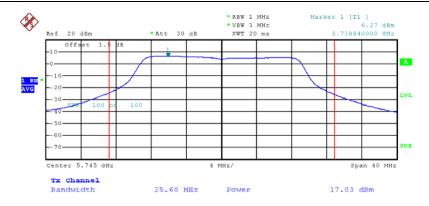
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Maximum Conducted Output Power Plot on 5745 MHz, HT-20 / HT-20, STBC / HT-20, Beam Forming, M0



Date: 18.0CT.2012 19:20:20

Tx2

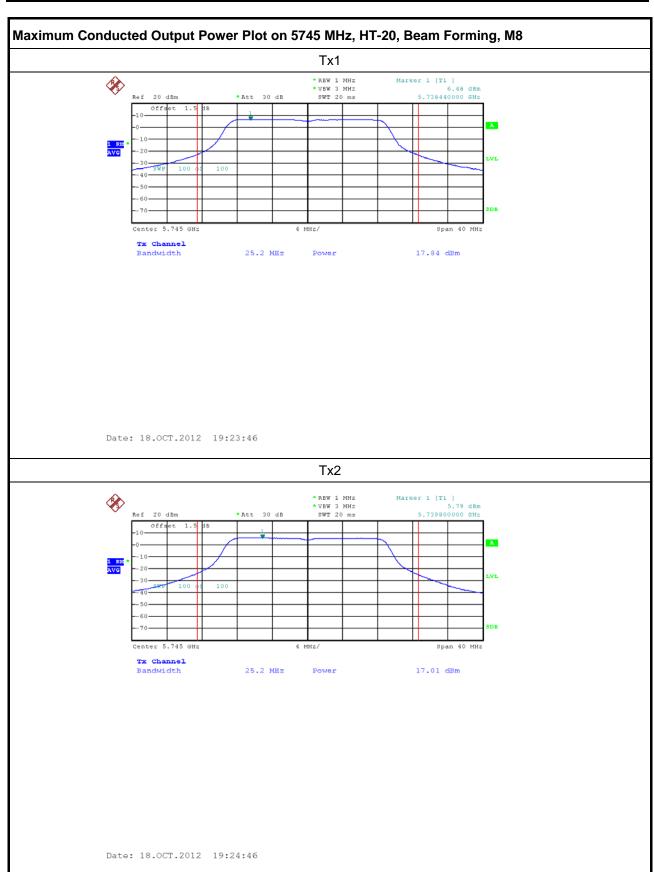


Date: 18.0CT.2012 19:19:18

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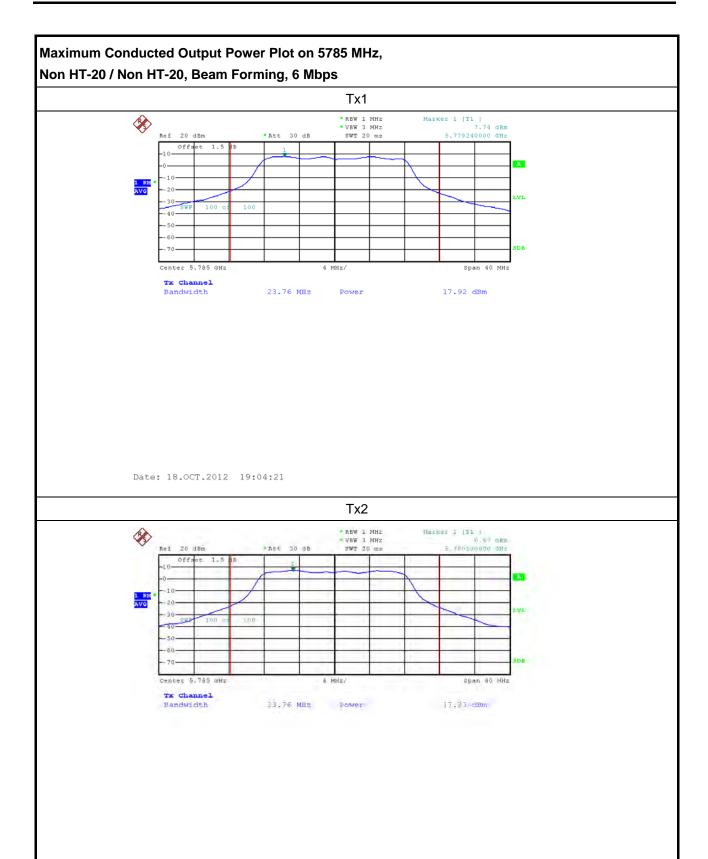


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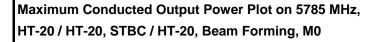
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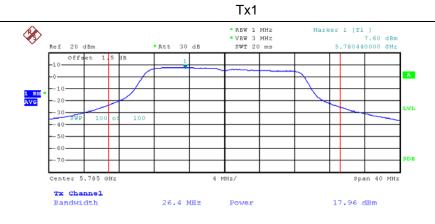


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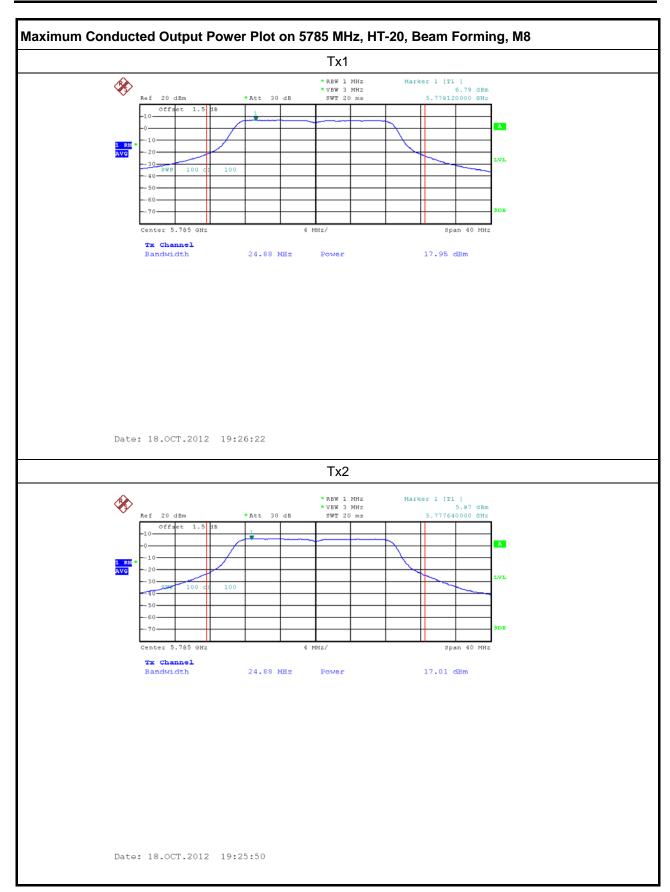
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Date: 18.OCT.2012 19:15:18

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Maximum Conducted Output Power Plot on 5825 MHz, Non HT-20 / Non HT-20, Beam Forming, 6 Mbps Tx1 *RBW 1 MHz *VBW 3 MHz SWT 20 ms Marker 1 [T1] 8.05 dBm 5.818920000 GHz **\$** Tx Channel Bandwidth 23.52 MHz Power 18.00 dBm Date: 18.0CT.2012 20:21:59 Tx2 RBW 1 MHz VBW 3 MHz SWT 20 ms Center 5,825 GHz Span 40 MHz Tx Channel Eandwidth 23,52 MHs 16.94 dBm

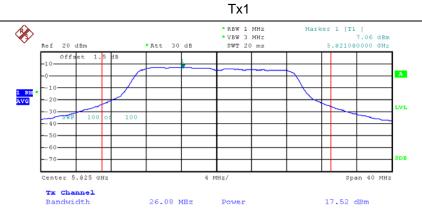
SPORTON INTERNATIONAL INC.

Date: 18.OCT.2012 20:21:23

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Maximum Conducted Output Power Plot on 5825 MHz, HT-20 / HT-20, STBC / HT-20, Beam Forming, M0



Date: 18.0CT.2012 19:13:36

Tx2

Date: 18.OCT.2012 19:14:19

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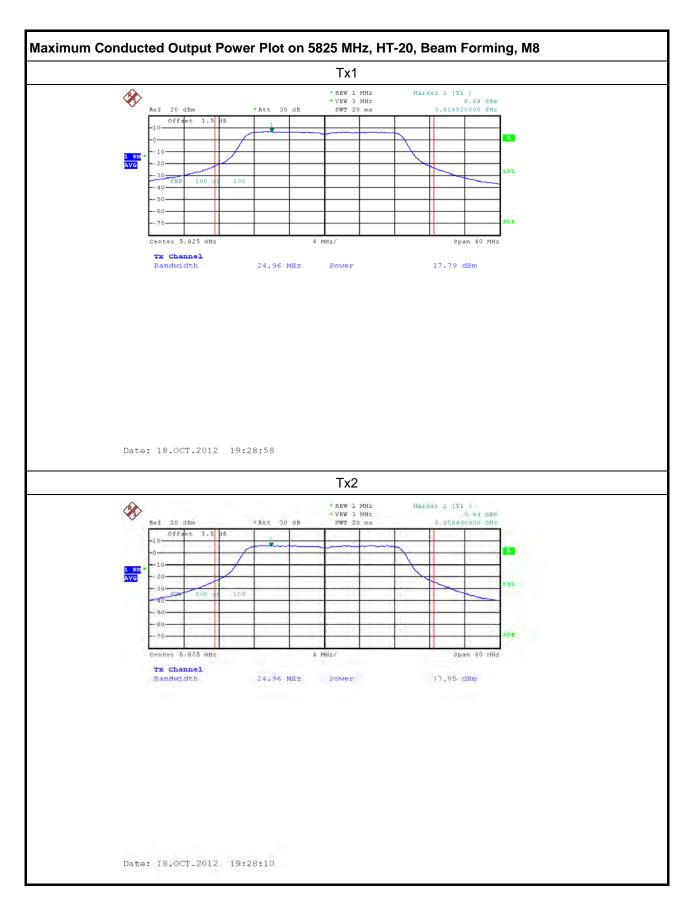
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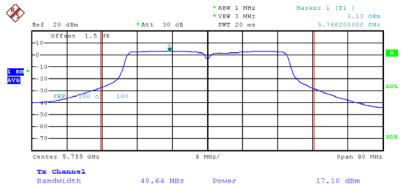
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Maximum Conducted Output Power Plot on 5755 MHz, HT-40 / HT-40, STBC / HT-40, Beam Forming, M0

Date: 18.OCT.2012 19:58:12

Tx2



Date: 18.0CT.2012 19:57:06

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Maximum Conducted Output Power Plot on 5755 MHz, HT-40, Beam Forming, M8 Tx1 *RBW 1 MHz *VBW 3 MHz SWT 20 ms Marker 1 [T1] 3.54 dBm 5.739480000 GHz Offset Center 5.755 GHz Tx Channel Bandwidth 47.36 MHz 17.64 dBm Date: 18.OCT.2012 20:05:00 Tx2 * RBW 1 MHz * VBW 3 MHz SWT 20 ms Marker 1 [T1 | 1.00 mam. 5.739900000 9Ms 1v. 90 dBm 47.36 MHz Power Bandwidth

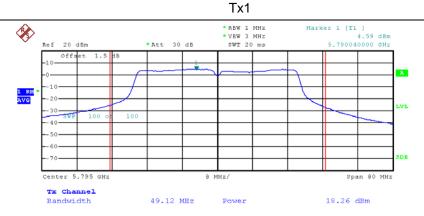
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Date: 18.OCT.2012 20:08:49

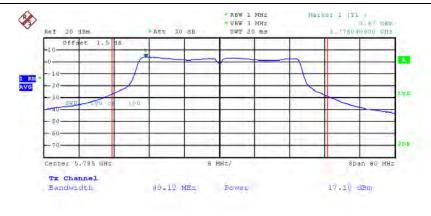


Maximum Conducted Output Power Plot on 5795 MHz, HT-40 / HT-40, STBC / HT-40, Beam Forming, M0



Date: 18.0CT.2012 20:01:23

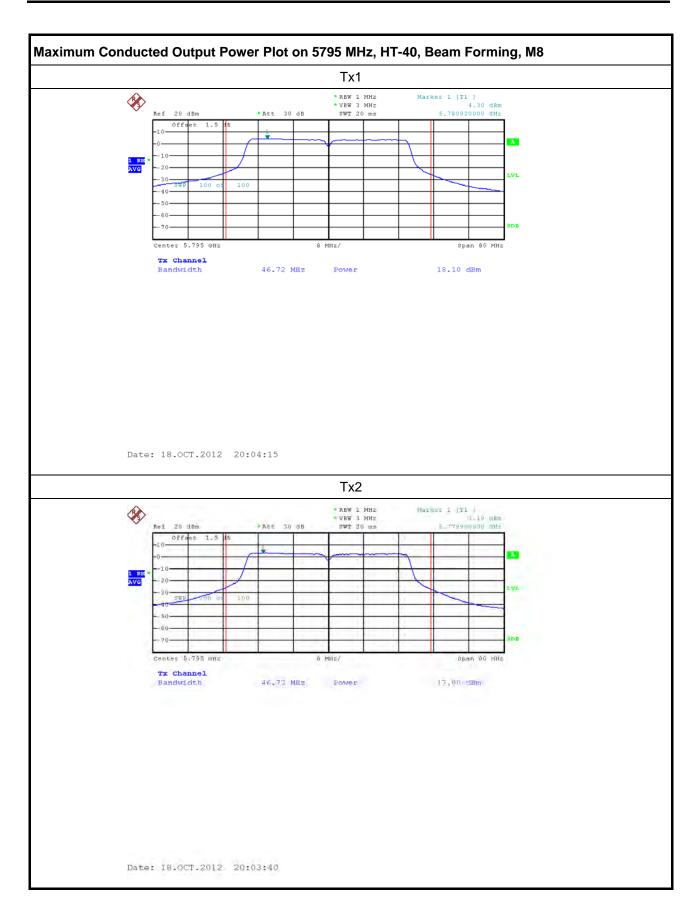
Tx2



Date: 18.OCT.2012 20:02:08

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3.5 Power Spectral Density

3.5.1 Power Spectral Density Limit

Power Spectral Density Limit	
Power Spectral Density (PSD) ≤ 8 dBm/3kHz	

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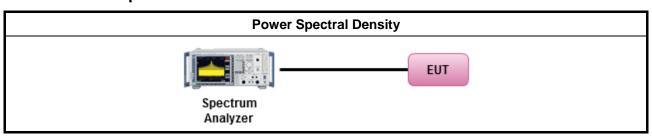
3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

		Test Method				
	Power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the power spectral density. In addition, the use of a peak PSD procedure will always result in a "worst-case" measured level for comparison to the limit. Therefore, whenever the DTS bandwidth exceeds 500 kHz, it is acceptable to utilize the peak PSD procedure to demonstrate compliance to the PSD limit, regardless of how the fundamental output power was measured. For the power spectral density shall be measured using below options:					
	\boxtimes	Refer as FCC KDB 558074, clause 9.1 Option 1 - (RBW≥3kHz; sweep=auto, detector=peak).				
		Refer as FCC KDB 558074, clause 9.2 Option 2 - (RBW≥3kHz; sweep=auto, average=100).				
		Refer as FCC KDB 558074, clause 9.3 Option 3 - (RBW≥3kHz; slow sweep speed).				
		Refer as FCC KDB 558074, clause 9.4 Option 2 (average PSD; BWCF=-15.2dB).				
		RBW>3kHz, add the bandwidth correction factor (BWCF) adjusting in PSD per 3kHz.				
\boxtimes	For	conducted measurement.				
	\boxtimes	The EUT supports multiple transmit chains using options given below:				
		Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911 In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the N _{TX} output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.				
		Option 2: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N) Or each transmit chains shall be add 10 log(N) to compared with the limit.				

3.5.4 Test Setup



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3.5.5 Test Result of Power Spectral Density

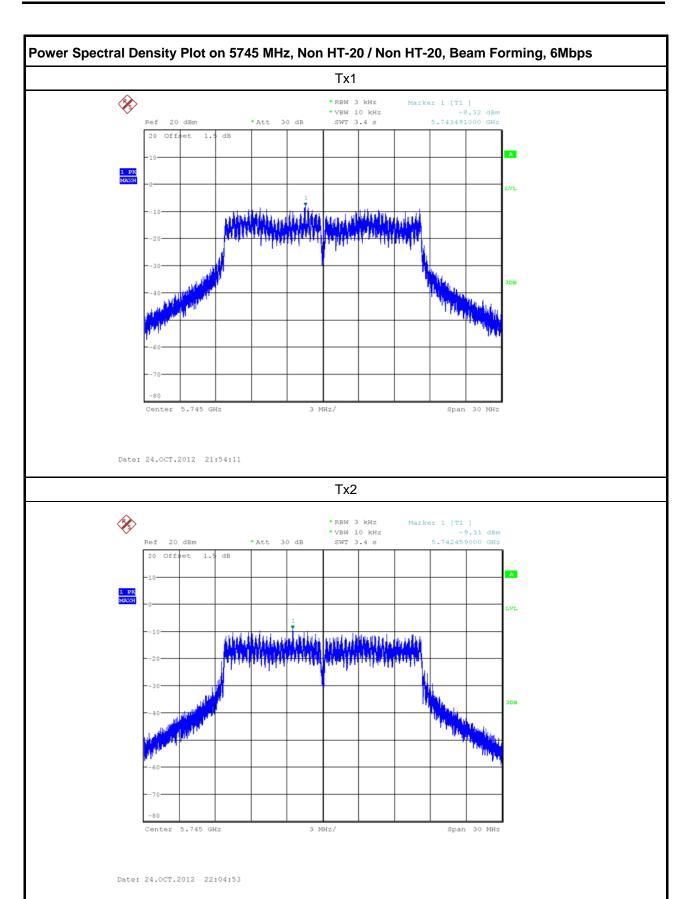
Ferq. (MHz)	Operating Mode	Data Rate (Mbps)	Tx1 PSD Antenna (dBm/3kHz)	Tx2 PSD Antenna (dBm/3kHz)	1Port Limit (dBm/3kHz)	1Port Margin (dB)	Total Tx PSD Antenna (dBm/3kHz)	Total Port Limit (dBm/3kHz)	Margin (dB)
	Non HT-20, 6 to 54Mbps	6	-8.32	-9.31	4.99	13.31	-5.78	8.00	13.78
	Non HT-20, Beam Forming, 6 to 54Mbps	6	-8.32	-9.31	2.98	11.30	-5.78	5.99	11.77
5745	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	M0	-7.7	-9.09	4.99	12.69	-5.33	8.00	13.33
	HT-20, Beam Forming, M0 to M7	M0	-7.7	-9.09	2.98	10.68	-5.33	5.99	11.32
	HT-20, Beam Forming, M8 to M15	M8	-8.83	-9.84	4.99	13.82	-6.30	8.00	14.30
		•	•	•				•	
	Non HT-20, 6 to 54Mbps	6	-7.85	-9.33	4.99	12.84	-5.52	8.00	13.52
	Non HT-20, Beam Forming, 6 to 54Mbps	6	-7.85	-9.33	2.98	10.83	-5.52	5.99	11.51
5785	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	M0	-8.89	-9.17	4.99	13.88	-6.02	8.00	14.02
	HT-20, Beam Forming, M0 to M7	M0	-8.89	-9.17	2.98	11.87	-6.02	5.99	12.01
	HT-20, Beam Forming, M8 to M15	M8	-8.68	-9.07	4.99	13.67	-5.86	8.00	13.86
	Non HT-20, 6 to 54Mbps	6	-6.28	-8.6	4.99	11.27	-4.28	8.00	12.28
	Non HT-20, Beam Forming, 6 to 54Mbps	6	-6.28	-8.6	2.98	9.26	-4.28	5.99	10.27
5825	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	M0	-6.99	-8.3	4.99	11.98	-4.59	8.00	12.59
	HT-20, Beam Forming, M0 to M7	M0	-6.99	-8.3	2.98	9.97	-4.59	5.99	10.58
	HT-20, Beam Forming, M8 to M15	M8	-7.56	-9.18	4.99	12.55	-5.28	8.00	13.28
	HT-40, M0 to M15 / HT-40, STBC, M0 to M7	M0	-9.44	-12.69	4.99	14.43	-7.76	8.00	15.76
5755	HT-40, Beam Forming, M0 to M7	M0	-9.44	-12.69	2.98	12.42	-7.76	5.99	13.75
	HT-40, Beam Forming, M8 to M15	M8	-10.6	-12.65	4.99	15.59	-8.49	8.00	16.49
	HT-40, M0 to M15 / HT-40, STBC, M0 to M7	M0	-9.46	-12.58	4.99	14.45	-7.74	8.00	15.74
5795	HT-40, Beam Forming, M0 to M7	M0	-9.46	-12.58	2.98	12.44	-7.74	5.99	13.73
	HT-40, Beam Forming, M8 to M15	M8	-11.98	-12.53	4.99	16.97	-9.24	8.00	17.24

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Note 1: PSD [dBm/3kHz] = each transmit chains PSD [dBm/3kHz] + $10\log N_{TX}$ Note 2: Power spectral density plots w/o [$10\log N_{TX}$] factor

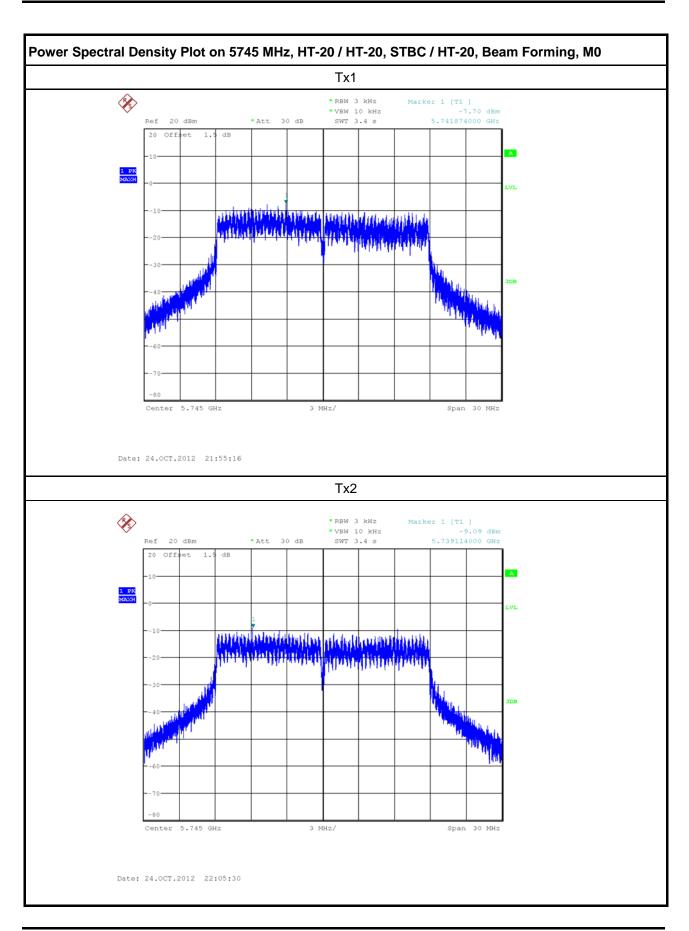
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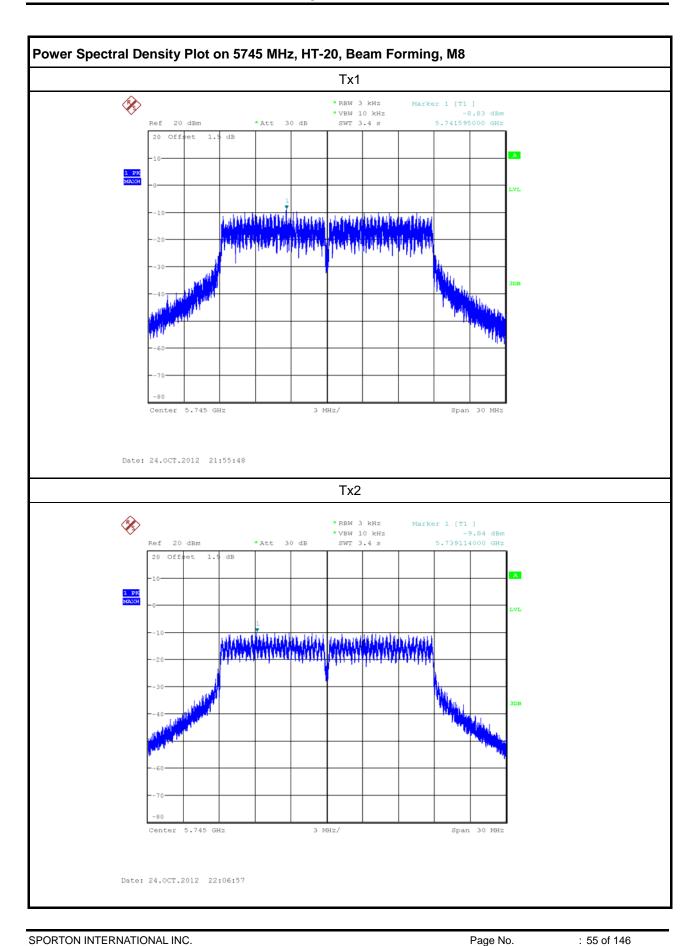




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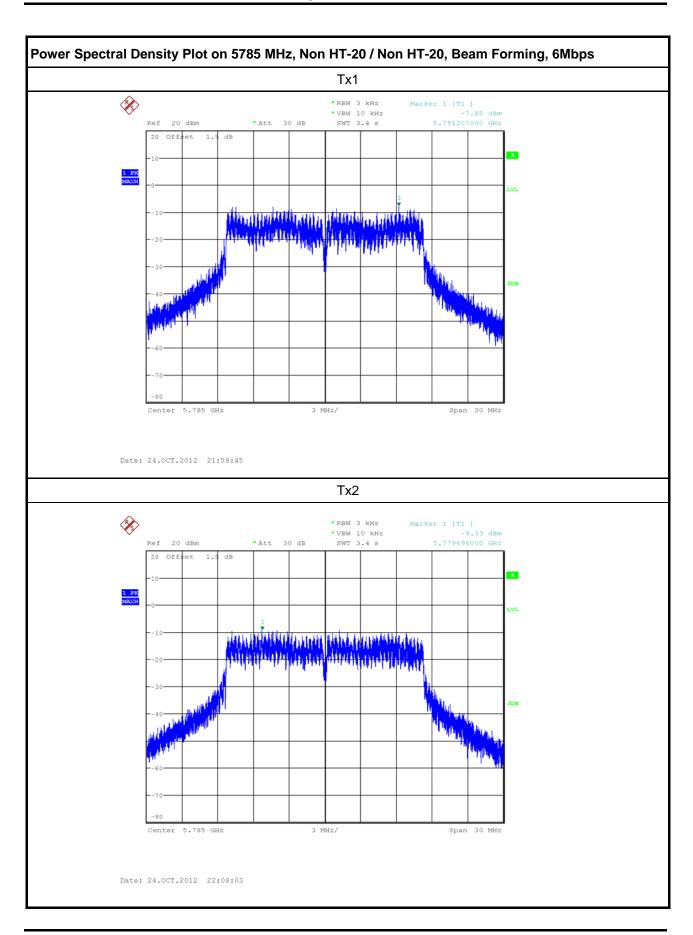




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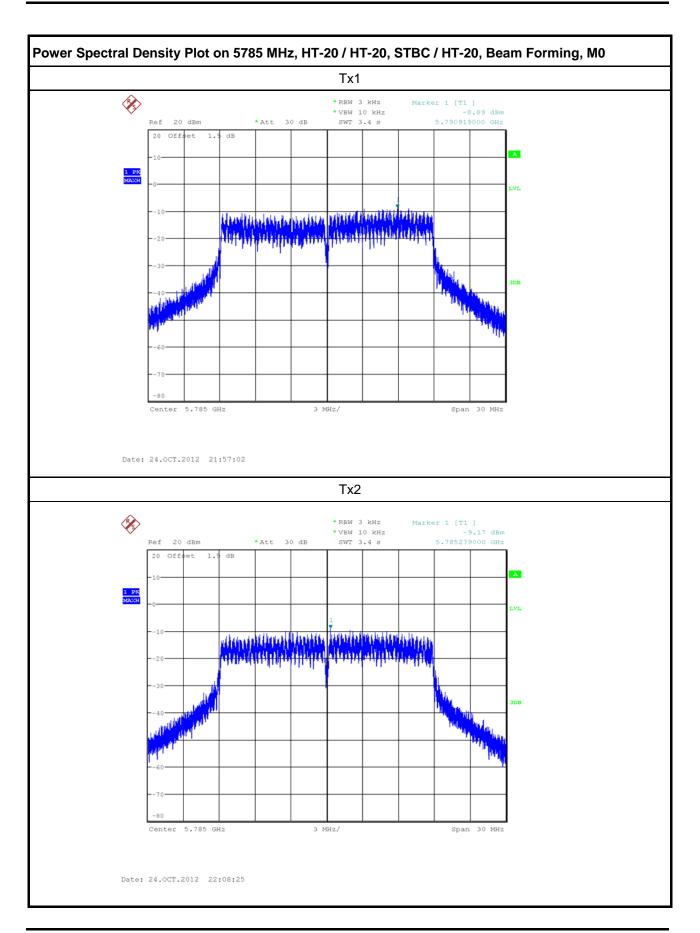




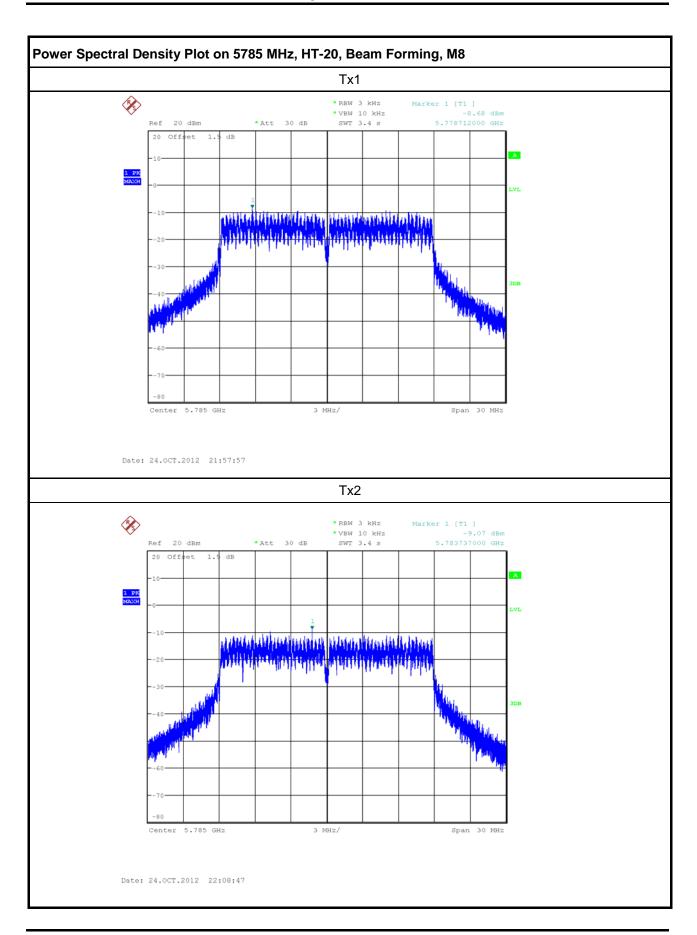
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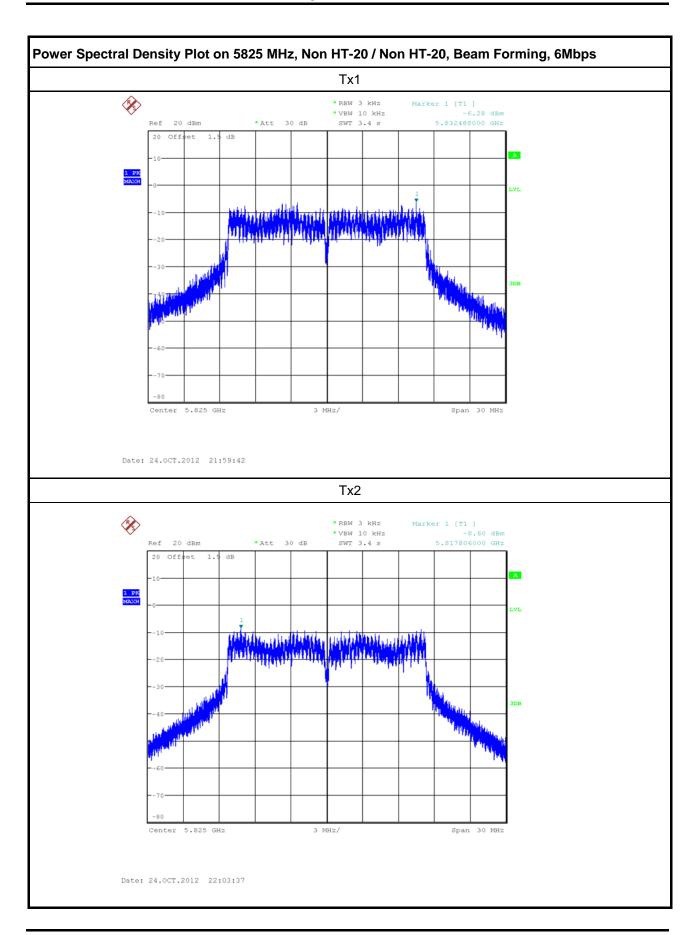


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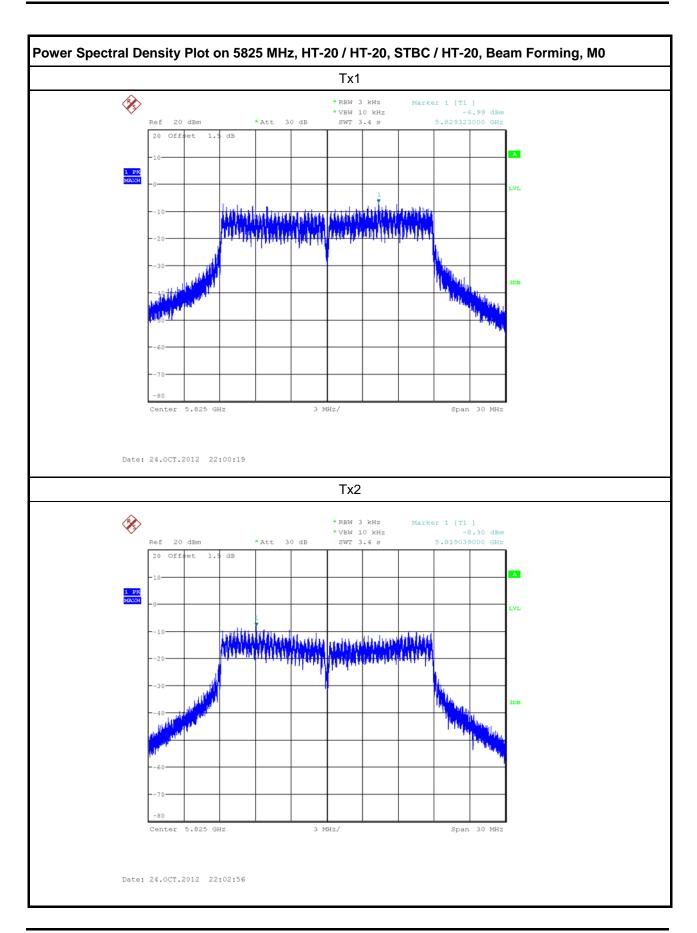






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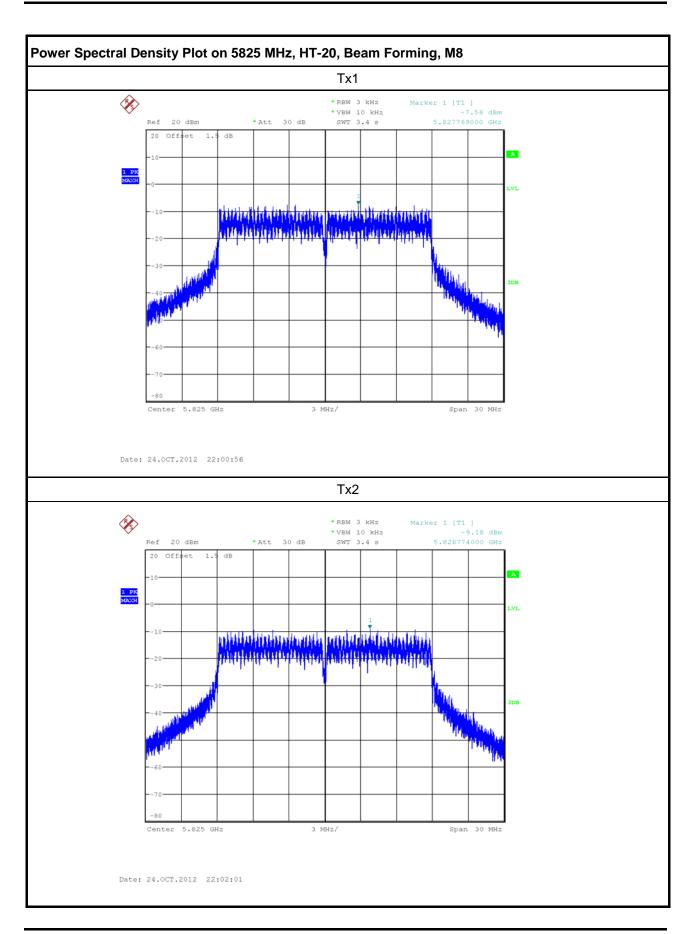




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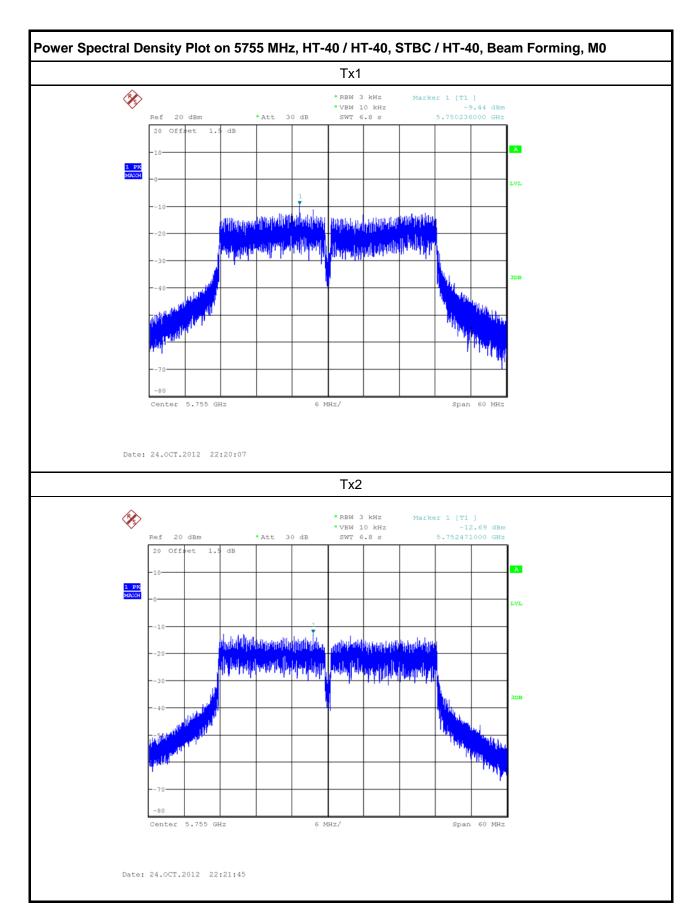


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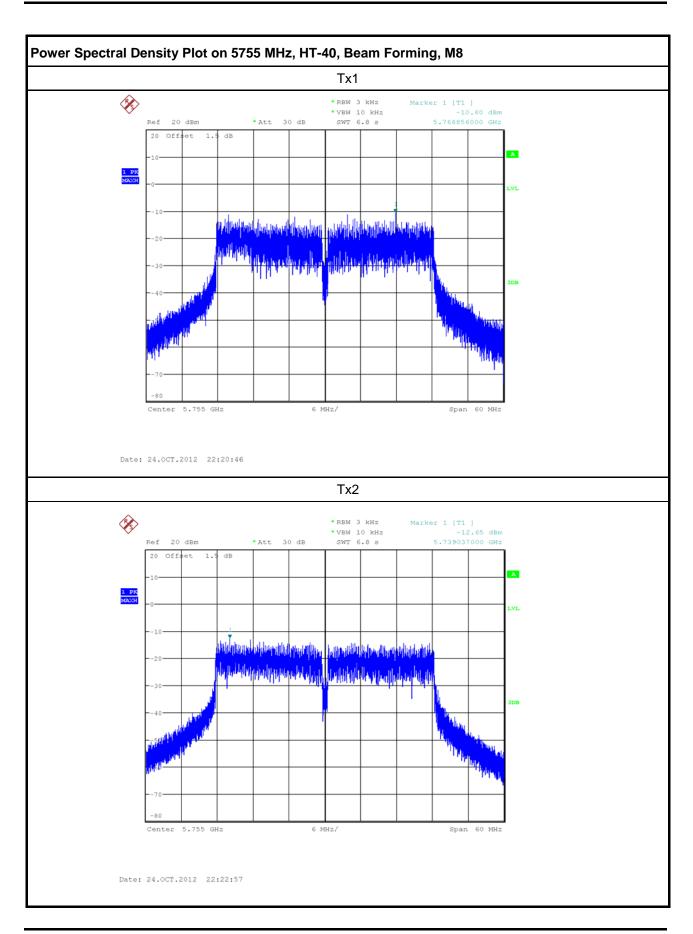




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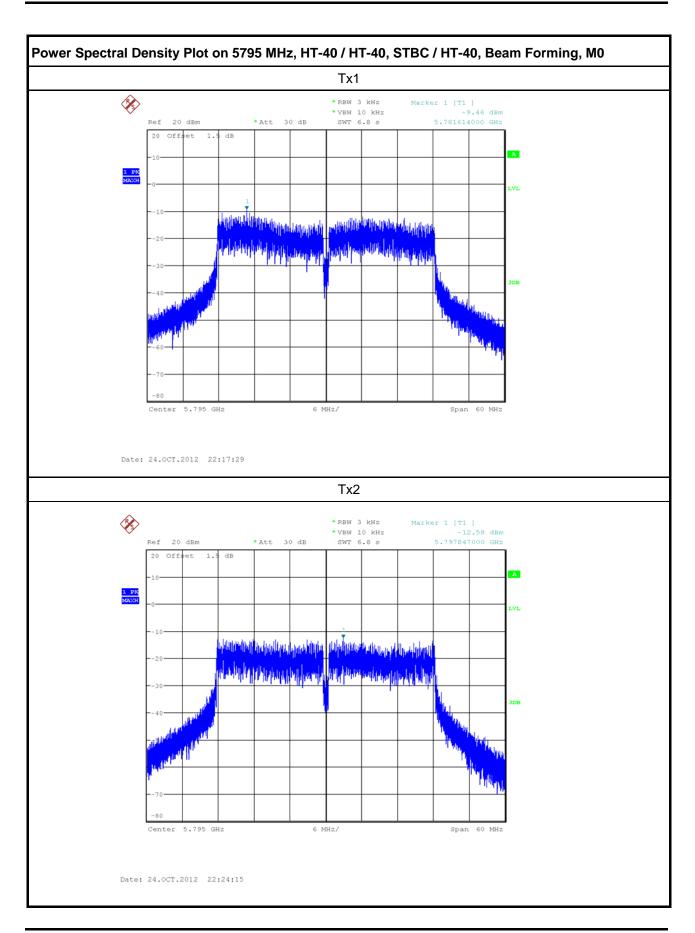
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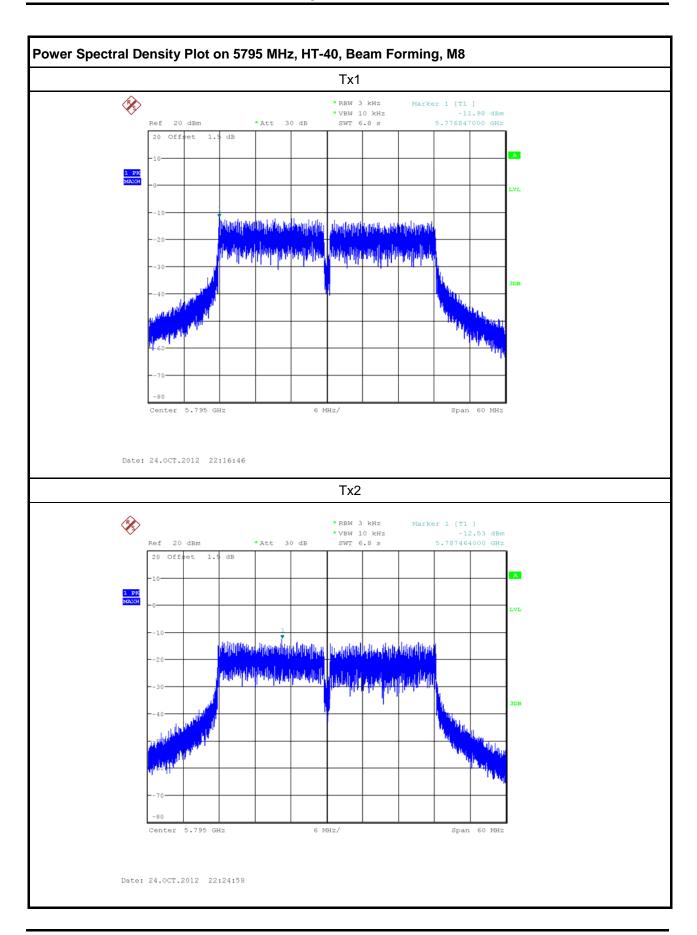




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Transmitter Conducted Unwanted Emissions

3.6.1 Transmitter Conducted Unwanted Emissions Limit

Un-restricted Band Emissions Limit				
RF output power procedure	Limit (dBc)			
Peak output power procedure	20			
Average output power procedure	30			

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- Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.
- Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

	Test Method					
\boxtimes	For the transmitter unwanted emissions shall be measured using following options below:					
	Refer as FCC KDB 558074, clause 10.1 for unwanted emissions into non-restricted bands.					
\boxtimes	For conducted measurement, refer as FCC KDB 558074, clause 10.2.2.					
	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.					

3.6.4 Test Setup

Transmitter Conducted Unwanted Emissions		
ЕИТ		
Spectrum Analyzer		

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3.6.5 Transmitter Conducted Unwanted Emissions

Freq. (MHz)	Operating Mode	Data Rate (Mbps)	Conducted Spur Delta (dB)	Limit (dBc)	Margin (dB)	
	Non HT-20, 6 to 54Mbps	6	42.5	30	12.5	
	Non HT-20, Beam Forming, 6 to 54Mbps	6	42.5	30	12.5	
5745	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	MO	43.13	30	13.13	
	HT-20, Beam Forming, M0 to M7	MO	43.13	30	13.13	
	HT-20, Beam Forming, M8 to M15	M8	42.37	30	12.37	
	Non HT-20, 6 to 54Mbps	6	41.91	30	11.91	
	Non HT-20, Beam Forming, 6 to 54Mbps	6	41.91	30	11.91	
5785	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	MO	42.22	30	12.22	
	HT-20, Beam Forming, M0 to M7	MO	42.22	30	12.22	
	HT-20, Beam Forming, M8 to M15	M8	42.41	30	12.41	
	Non HT-20, 6 to 54Mbps	6	42.12	30	12.12	
	Non HT-20, Beam Forming, 6 to 54Mbps	6	42.12	30	12.12	
5825	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	M0	41.88	30	11.88	
	HT-20, Beam Forming, M0 to M7	MO	41.88	30	11.88	
	HT-20, Beam Forming, M8 to M15	M8	42.35	30	12.35	
					_	
	HT-40, M0 to M15 / HT-40, STBC, M0 to M7	MO	38.75	30	8.75	
5755	HT-40, Beam Forming, M0 to M7	MO	38.75	30	8.75	
	HT-40, Beam Forming, M8 to M15	M8	40.93	30	10.93	
	HT-40, M0 to M15 / HT-40, STBC, M0 to M7	MO	39.93	30	9.93	
5795	HT-40, Beam Forming, M0 to M7	MO	39.93	30	9.93	
	HT-40, Beam Forming, M8 to M15	M8	39.71	30	9.71	

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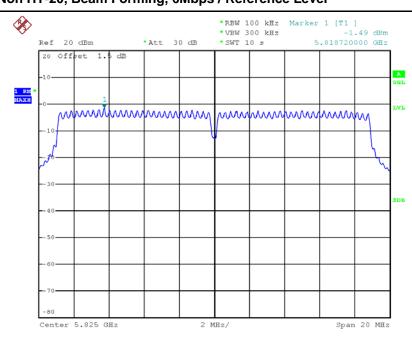
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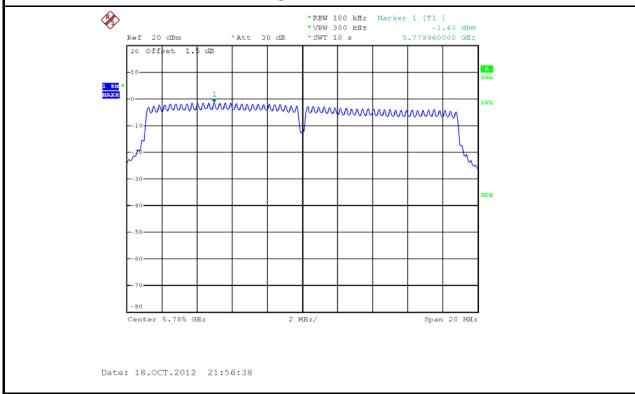


Transmitter Conducted Unwanted Emissions Plot on Non HT-20 / Non HT-20, Beam Forming, 6Mbps / Reference Level



Date: 18.0CT.2012 21:58:46

Transmitter Conducted Unwanted Emissions Plot on HT-20 / HT-20, STBC / HT-20, Beam Forming, M0 / Reference Level



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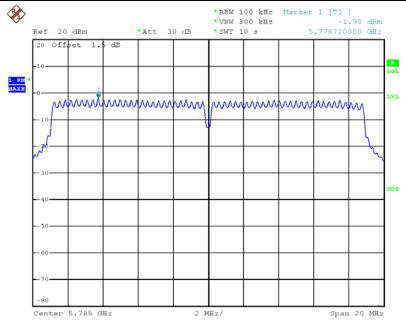
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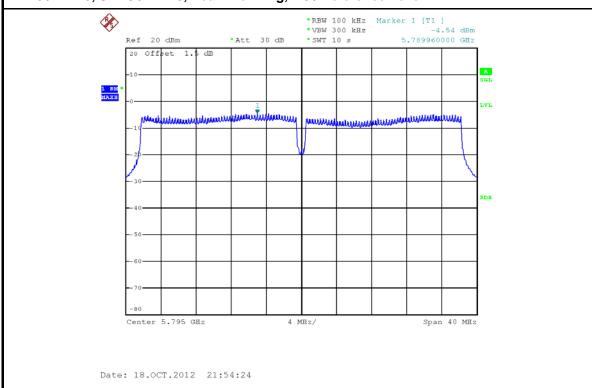






Date: 18.0CT.2012 21:58:02

Transmitter Conducted Unwanted Emissions Plot on HT-40 / HT-40, STBC / HT-40, Beam Forming, M0 / Reference Level



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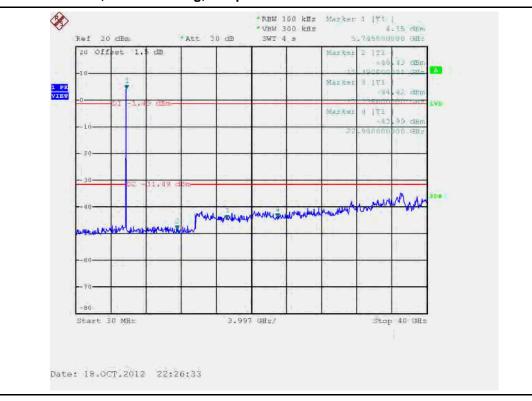


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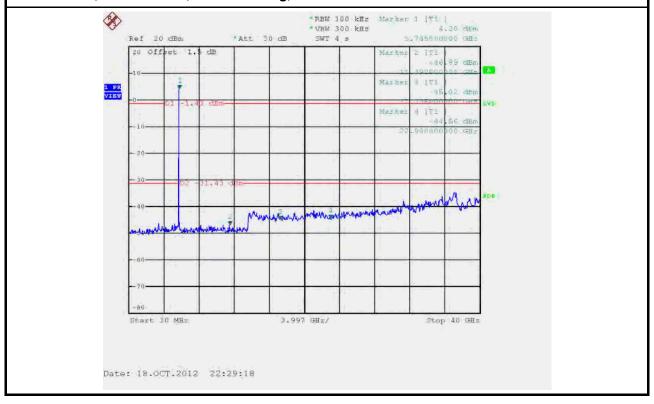
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Transmitter Conducted Unwanted Emissions Plot on 5745 MHz, Non HT-20 / Non HT-20, Beam Forming, 6Mbps



Transmitter Conducted Unwanted Emissions Plot on 5745 MHz, HT-20 / HT-20, STBC / HT-20, Beam Forming, M0



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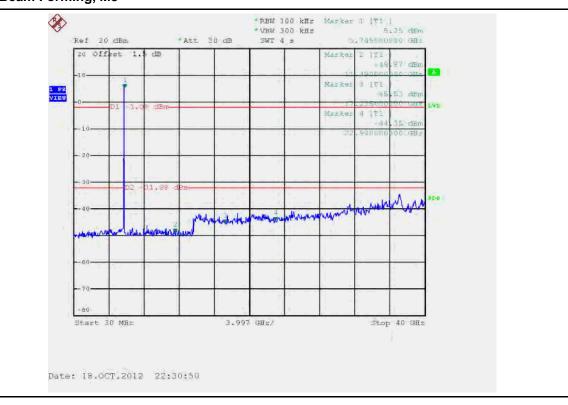
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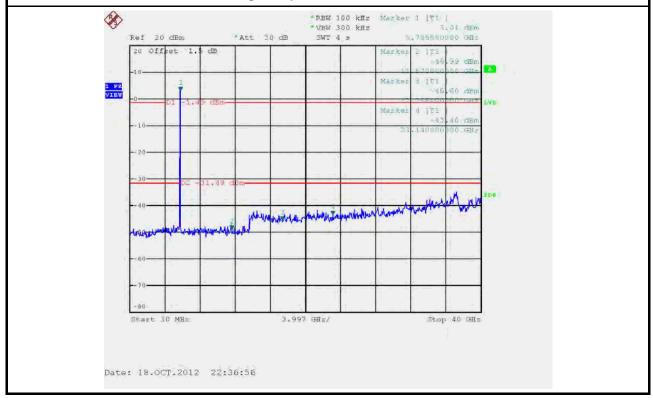
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Transmitter Conducted Unwanted Emissions Plot on 5745 MHz, HT-20, Beam Forming, M8



Transmitter Conducted Unwanted Emissions Plot on 5785 MHz, Non HT-20 / Non HT-20, Beam Forming, 6Mbps



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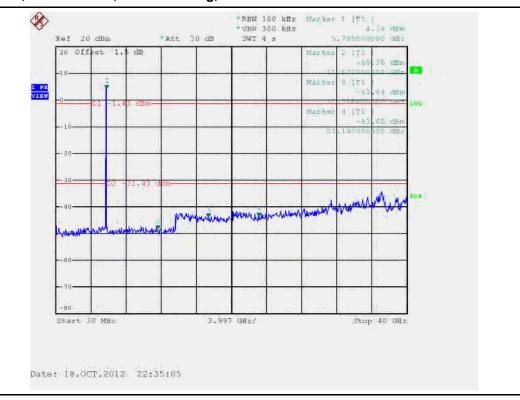
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Transmitter Conducted Unwanted Emissions Plot on 5785 MHz, HT-20 / HT-20, STBC / HT-20, Beam Forming, M0



Transmitter Conducted Unwanted Emissions Plot on 5785 MHz, HT-20, Beam Forming, M8



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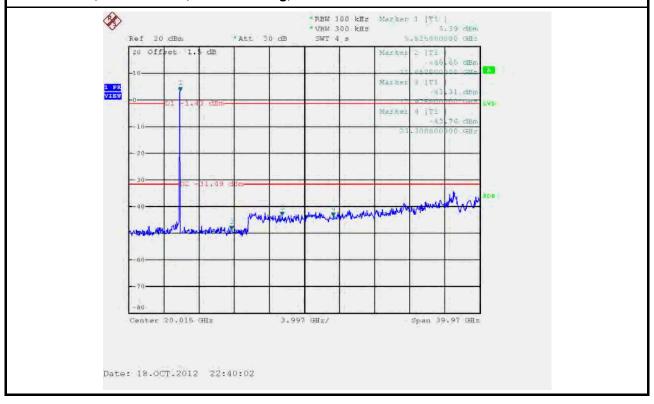
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Transmitter Conducted Unwanted Emissions Plot on 5825 MHz, Non HT-20 / Non HT-20, Beam Forming, 6Mbps



Transmitter Conducted Unwanted Emissions Plot on 5825 MHz, HT-20 / HT-20, STBC / HT-20, Beam Forming, M0



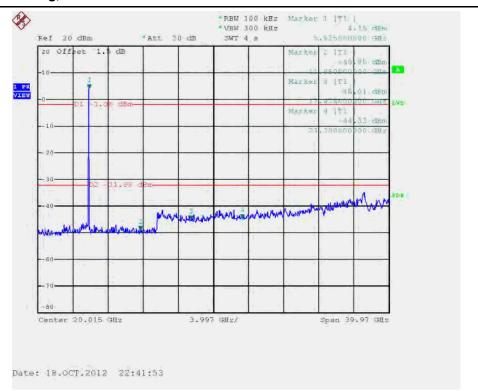
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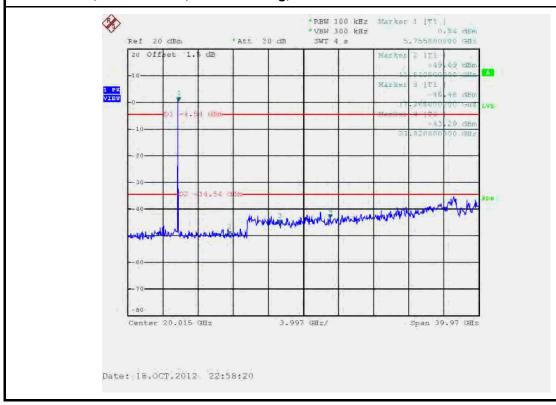
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Transmitter Conducted Unwanted Emissions Plot on 5825 MHz, HT-20, Beam Forming, M8



Transmitter Conducted Unwanted Emissions Plot on 5755 MHz, HT-40 / HT-40, STBC / HT-40, Beam Forming, M0

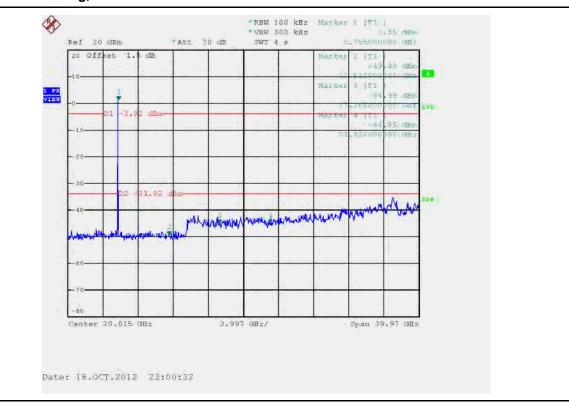


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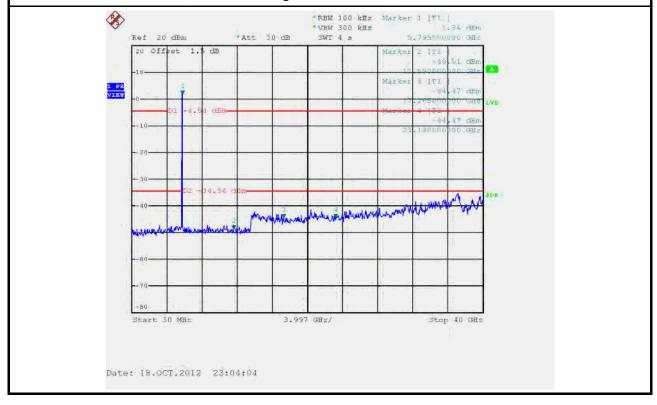
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Transmitter Conducted Unwanted Emissions Plot on 5755 MHz, HT-40, Beam Forming, M8



Transmitter Conducted Unwanted Emissions Plot on 5795 MHz, HT-40 / HT-40, STBC / HT-40, Beam Forming, M0

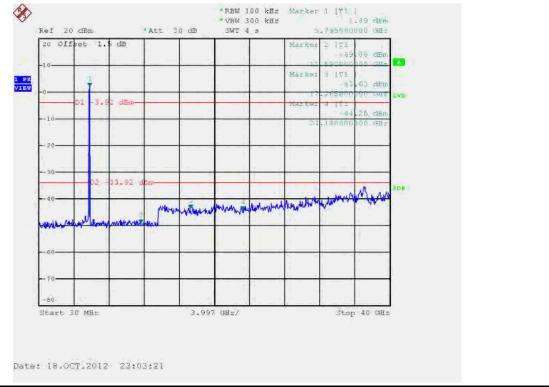


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Transmitter Conducted Unwanted Emissions Plot on 5795 MHz, HT-40, Beam Forming, M8 Ref 20 dBm Att 30 dB SWT 4 s 5-795 Ref 20 offet 1.5 dB Market 2 7



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3.7 Transmitter Radiated Unwanted Emissions

3.7.1 Transmitter Radiated Unwanted Emissions Limit

Restricted Band Emissions Limit											
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)								
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300								
0.490~1.705	24000/F(kHz)	33.8 - 23	30								
1.705~30.0	30	29	30								
30~88	100	40	3								
88~216	150	43.5	3								
216~960	200	46	3								
Above 960	500	54	3								

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Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

3.7.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

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3.7.3 Test Procedures

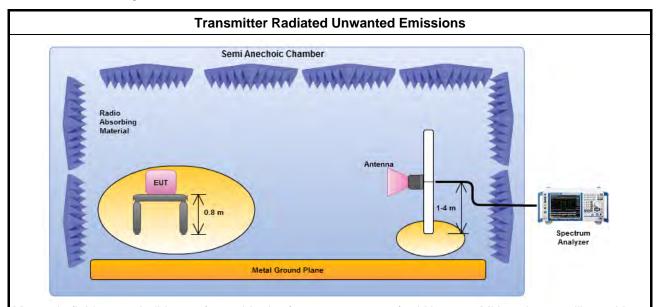
		Test Method
	perf equ extr dista	asurements may be performed at a distance other than the limit distance provided they are not ormed in the near field and the emissions to be measured can be detected by the measurement ipment. When performing measurements at a distance other than that specified, the results shall be appolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear ance for field-strength measurements, inverse of linear distance-squared for power-density asurements).
		Measurements in the frequency range above 1GHz -40GHz are typically made at a closer distance 3m, because the instrumentation noise floor is typically close to the radiated emission limit.
\boxtimes	The	average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
\boxtimes	For	the transmitter unwanted emissions shall be measured using following options below:
	\boxtimes	Refer as FCC KDB 558074, clause 10.1 for unwanted emissions into non-restricted bands.
		Refer as FCC KDB 558074, clause 10.2 for unwanted emissions into restricted bands.
		Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 1 (spectral trace averaging)
		Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 2 (slow sweep speed).
		Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty cycle ≥ 98%.
		Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
		Refer as FCC KDB 558074, clause 10.2.3.2 and 8.1.1 measurement procedure peak limit.
		Refer as FCC KDB 558074, clause 10.2.3.1 measurement procedure Quasi-Peak limit.
\boxtimes	For	cabinet radiation radiated measurement, refer as FCC KDB 558074, clause 10.2.1.
	\boxtimes	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz.
	\boxtimes	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz.
		Refer as ANSI C63.10, clause 6.5 for radiated emissions from above 1 GHz.

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3.7.4 Test Setup



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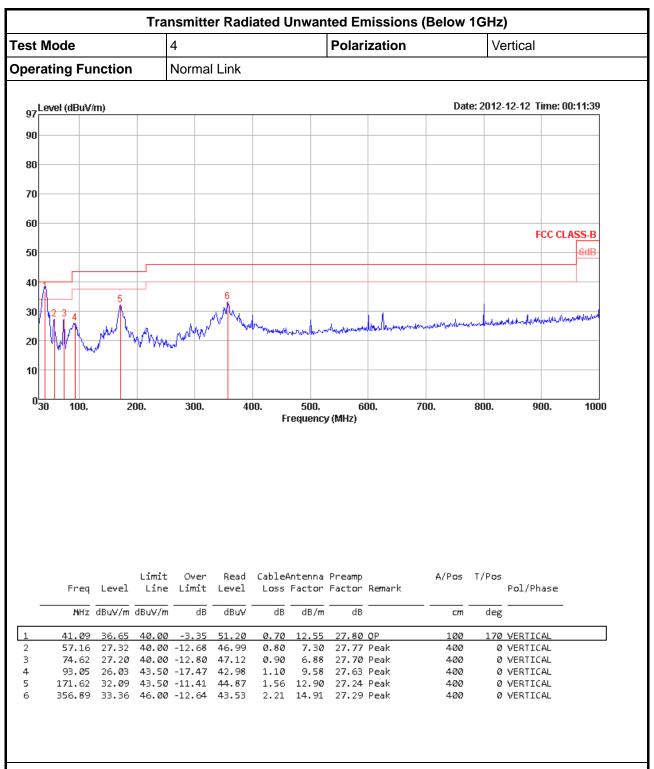
Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn antenna.

3.7.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

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Transmitter Radiated Unwanted Emissions (Below 1GHz)



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Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

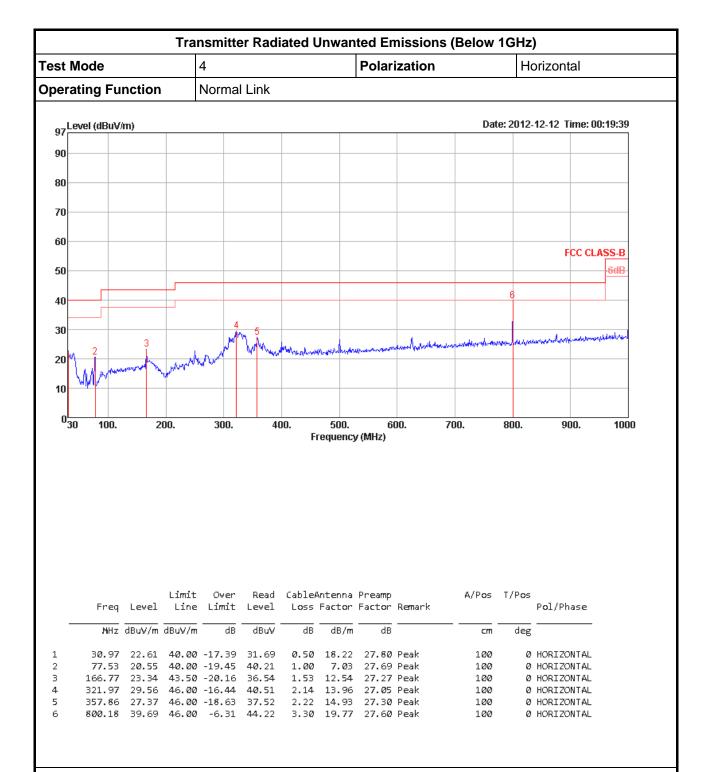
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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3.7.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)

Transmitter Radiated Unwanted Emissions Result – Average

Freq.	Operating Mode	Data Rate (Mbps)	Spurious Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)
	Non HT-20, 6 to 54Mbps	6	43.48	54	10.52
	Non HT-20, Beam Forming, 6 to 54Mbps	6	43.48	54	10.52
5745	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	MO	43.48	54	10.52
	HT-20, Beam Forming, M0 to M7	MO	43.48	54	10.52
	HT-20, Beam Forming, M8 to M15	M8	43.48	54	10.52
	Non HT-20, 6 to 54Mbps	6	43.32	54	10.68
	Non HT-20, Beam Forming, 6 to 54Mbps	6	43.32	54	10.68
5785	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	MO	43.32	54	10.68
	HT-20, Beam Forming, M0 to M7	MO	43.32	54	10.68
	HT-20, Beam Forming, M8 to M15	M8	43.32	54	10.68
	Non HT-20, 6 to 54Mbps	6	43.56	54	10.44
	Non HT-20, Beam Forming, 6 to 54Mbps	6	43.56	54	10.44
5825	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	MO	43.56	54	10.44
	HT-20, Beam Forming, M0 to M7	MO	43.56	54	10.44
	HT-20, Beam Forming, M8 to M15	M8	43.56	54	10.44
	HT-40, M0 to M15 / HT-40, STBC, M0 to M7	MO	43.37	54	10.63
5755	HT-40, Beam Forming, M0 to M7	MO	43.37	54	10.63
	HT-40, Beam Forming, M8 to M15	M8	43.37	54	10.63
	HT-40, M0 to M15 / HT-40, STBC, M0 to M7	MO	43.31	54	10.69
5795	HT-40, Beam Forming, M0 to M7	MO	43.31	54	10.69
	HT-40, Beam Forming, M8 to M15	M8	43.31	54	10.69

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Transmitter Radiated Unwanted Emissions Result – Peak

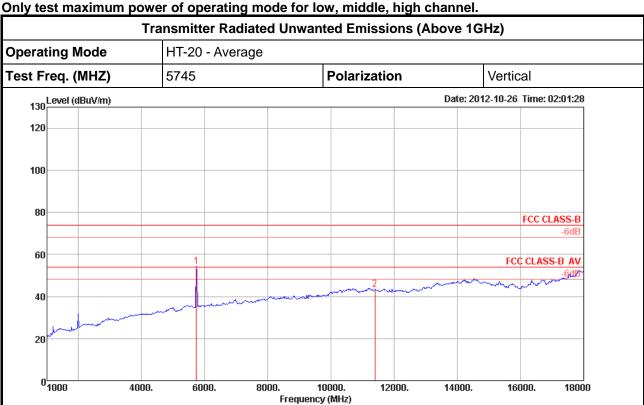
Freq.	Operating Mode	Data Rate (Mbps)	Spurious Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)
, ,	Non HT-20, 6 to 54Mbps	6	56.27	74	17.73
	Non HT-20, Beam Forming, 6 to 54Mbps	6	56.27	74	17.73
5745	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	MO	56.27	74	17.73
	HT-20, Beam Forming, M0 to M7	MO	56.27	74	17.73
	HT-20, Beam Forming, M8 to M15	M8	56.27	74	17.73
	Non HT-20, 6 to 54Mbps	6	56.2	74	17.8
	Non HT-20, Beam Forming, 6 to 54Mbps	6	56.2	74	17.8
5785	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	MO	56.2	74	17.8
	HT-20, Beam Forming, M0 to M7	MO	56.2	74	17.8
	HT-20, Beam Forming, M8 to M15	M8	56.2	74	17.8
	Non HT-20, 6 to 54Mbps	6	56.2	74	17.8
	Non HT-20, Beam Forming, 6 to 54Mbps	6	56.2	74	17.8
5825	HT-20, M0 to M15 / HT-20, STBC, M0 to M7	MO	56.2	74	17.8
	HT-20, Beam Forming, M0 to M7	MO	56.2	74	17.8
	HT-20, Beam Forming, M8 to M15	M8	56.2	74	17.8
	HT-40, M0 to M15 / HT-40, STBC, M0 to M7	M0	55.69	74	18.31
5755	HT-40, Beam Forming, M0 to M7	M0	55.69	74	18.31
	HT-40, Beam Forming, M8 to M15	M8	55.69	74	18.31
	HT-40, M0 to M15 / HT-40, STBC, M0 to M7	M0	56.17	74	17.83
5795	HT-40, Beam Forming, M0 to M7	MO	56.17	74	17.83
	HT-40, Beam Forming, M8 to M15	M8	56.17	74	17.83

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Transmitter Radiated Unwanted Emissions Worst Plots (Above 1GHz)
Only test maximum power of operating mode for low, middle, high chann



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	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg
1 2	5736.00 11392.00								Average Average	100 100	Ø VERTICAL 77 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

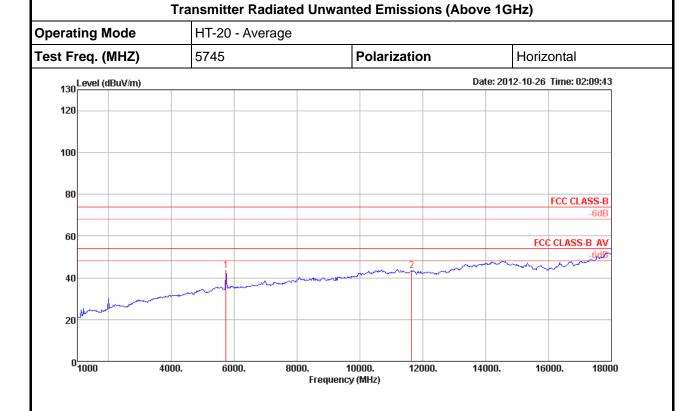
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu∀	dB	dB/m	dB		cm	deg	
1 2	5736.00 11638.00								Average Average	100 100		HORIZONTAL HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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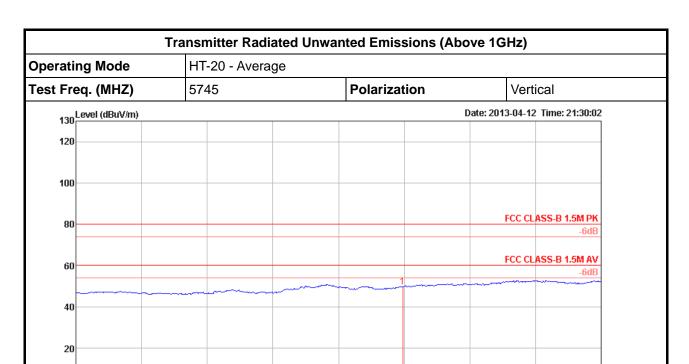
0¹8000

19000.

20000.

21000.

FCC and IC Radio Test Report



22000.

Frequency (MHz)

23000.

24000.

25000.

26000

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	Freq	Level	Limit Line	Over L imi t						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg
1	22980.00	49.53	60.00	-10.47	31.61	14.77	38.66	35.51	Average	100	18 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

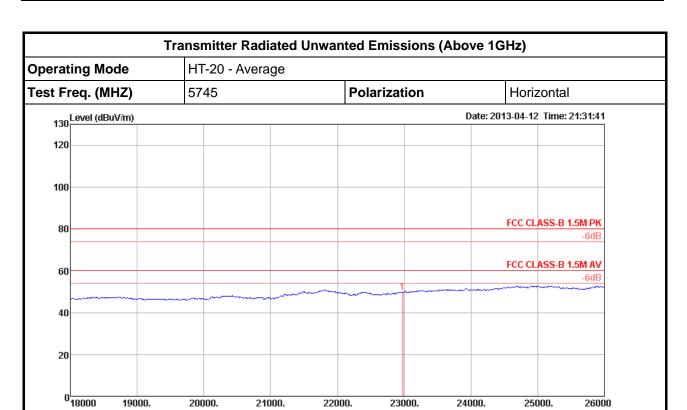
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg ————
1	22980.00	49.65	60.00	-10.35	31.73	14.77	38.66	35.51	Average	100	157 HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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40

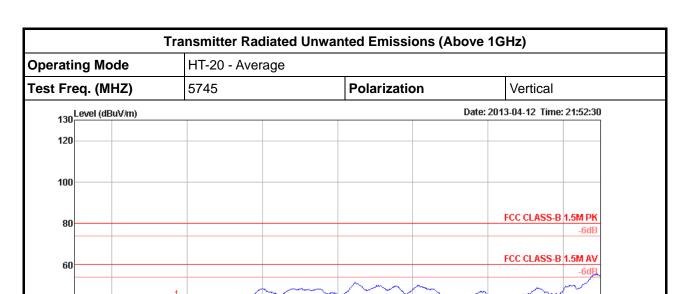
20

⁰26000

29000.

31000.

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33000.

Frequency (MHz)

35000.

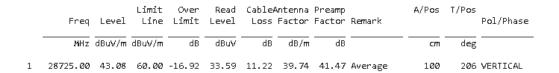
37000.

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39000. 40000

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Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

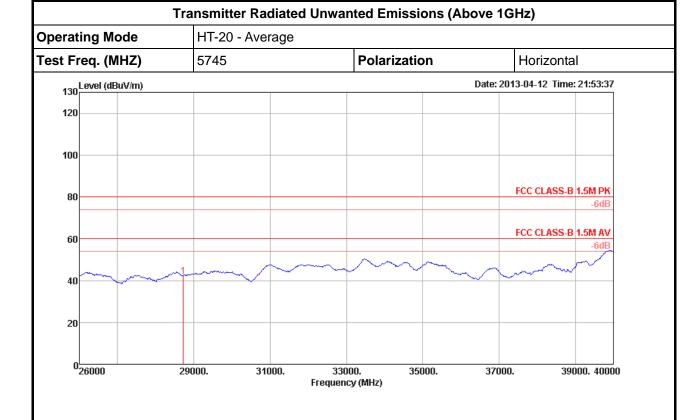
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level			Read Level					A/Pos	T/Pos Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg ———	
1	28725.00	41.99	60.00	-18.01	32.50	11.22	39.74	41.47	Average	100	101 HORIZONTAL	

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

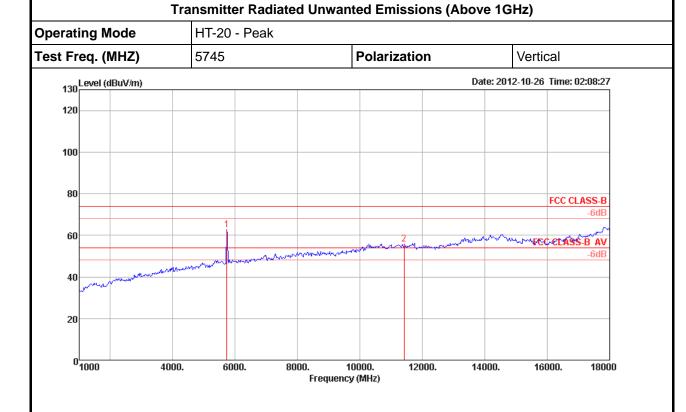
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit					A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg
1 2	5736.00 11416.00								100 100	Ø VERTICAL 77 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

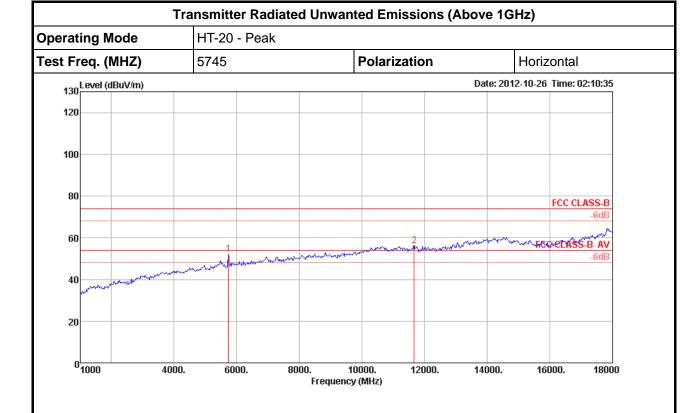
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Frea	Level	Over Limit			Remark	A/Pos	-	Pol/Phase
			 ——dB	 	dB/m	 	cm	deg	
1 2	5736.00 11662.00						100 100	_	HORIZONTAL HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

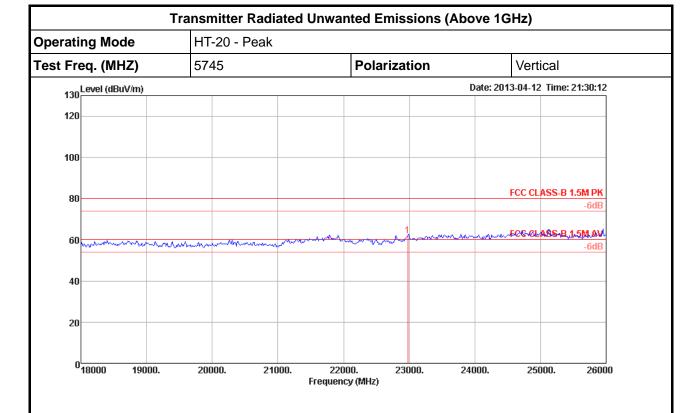
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over L imi t					Remark	A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg
1	22980.00	62.01	80.00	-17.99	44.09	14.77	38.66	35.51	Peak	100	18 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

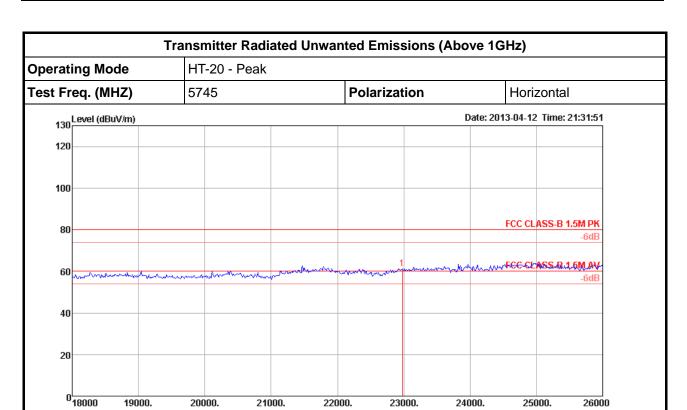
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Limit						A/Pos		Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg	
1	22980.00	61.21	80.00	-18.79	43.29	14.77	38.66	35.51	Peak	100	157	HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

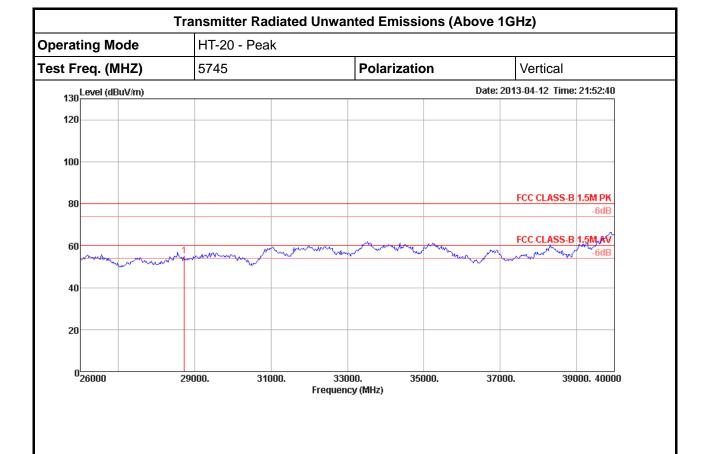
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos		ol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB			deg	
1	28725.00	55.04	80.00	-24.96	45.55	11.22	39.74	41.47	Peak	100	206 VI	ERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

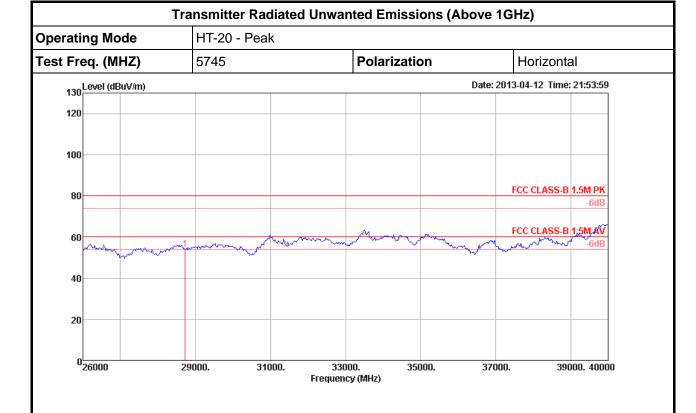
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit					Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg	
1	28725.00	53.95	80.00	-26.05	44.46	11.22	39.74	41.47	Peak	100	101	HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

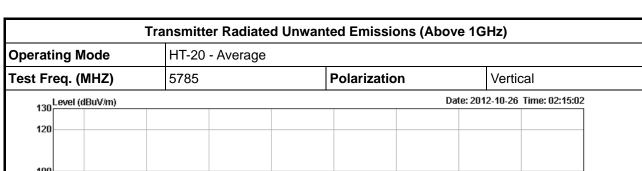
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

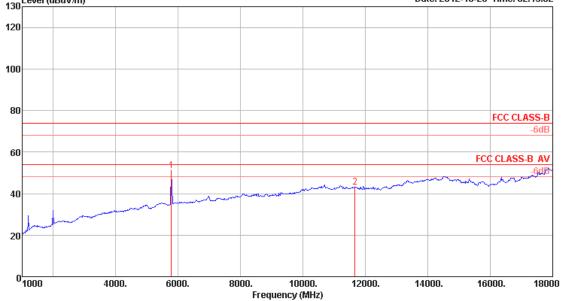
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos		Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5785.00	51.09	54.00	-2.91	46.94	4.42	34.93	35.20	Average	100	ø	VERTICAL
2	11668.00	43.08	54.00	-10.92	31.49	7.22	39.44	35.07	Average	100	10	VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

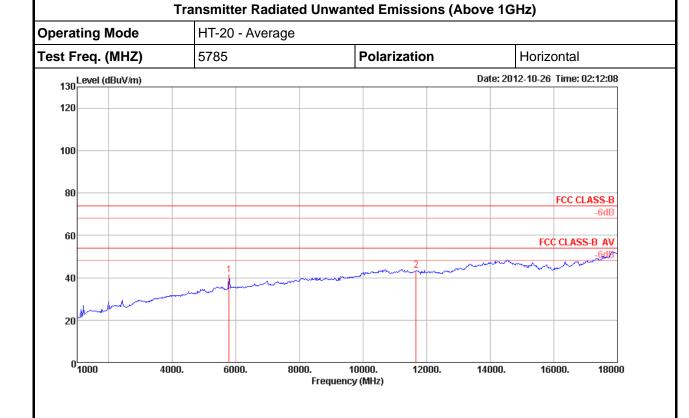
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit						A/Pos	T/P o s	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg	
1	5785.00	41.32	54.00	-12.68	37.17	4.42	34.93	35.20	Average	100	360	HORIZONTAL
2	11668.00	43.32	54.00	-10.68	31.73	7.22	39.44	35.07	Average	100	55	HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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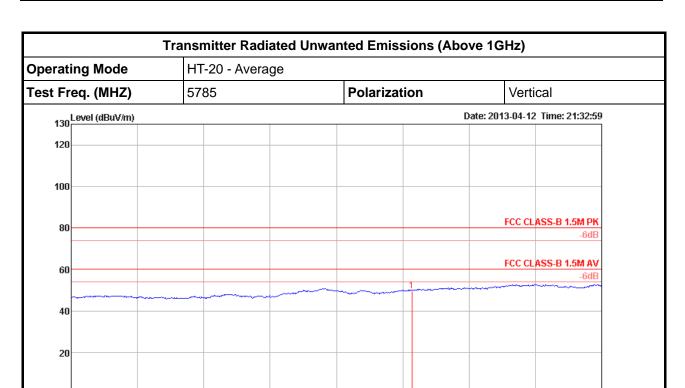
⁰18000

19000.

20000.

21000.

FCC and IC Radio Test Report



22000.

Frequency (MHz)

23000.

24000.

25000.

26000

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	Freq	Level		Over Limit						A/Pos	T/Pos Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg ————	
1	23140.00	49.79	60.00	-10.21	31.47	14.90	38.70	35.28	Average	100	315 VERTICAL	

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

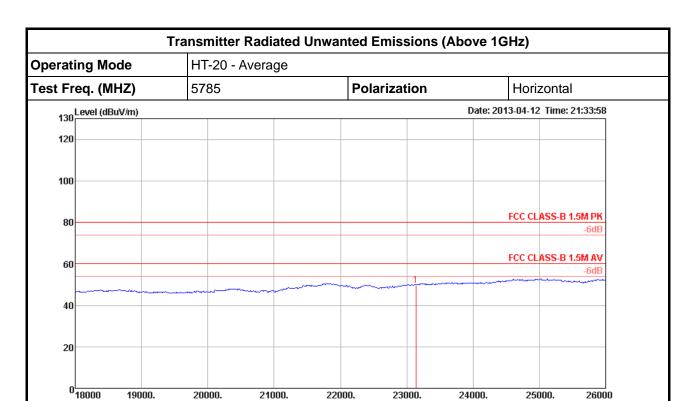
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Frequency (MHz)

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	Freq	Level	Limit	Over Limit						A/Pos	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg ———	
1	23140.00	49.78	60.00	-10.22	31.46	14.90	38.70	35.28	Average	100	208 HORIZONTAL	

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

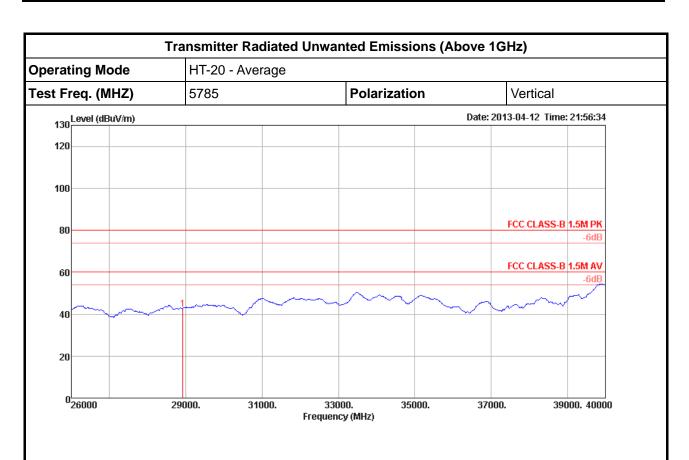
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg
1	28925.00	42.46	60.00	-17.54	33.43	11.31	39.85	42.13	Average	100	93 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

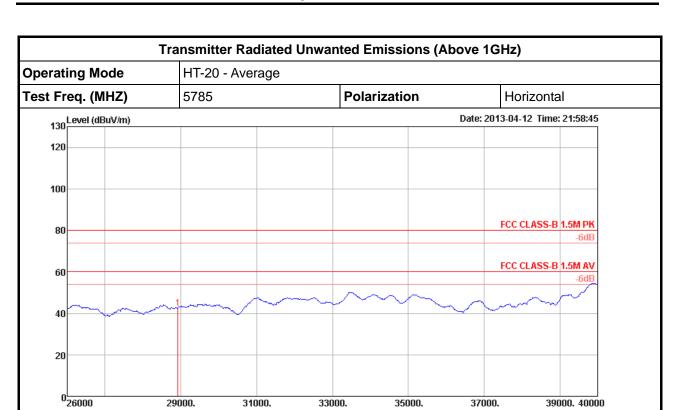
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Frequency (MHz)

Report No.: FR281405-03AB

	Freq	Level	Limit Line		Read Level					A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	——dB	dBu∀	dB	dB/m	——dB			deg
1	28925.00	42.34	60.00	-17.66	33.31	11.31	39.85	42.13	Average	100	177 HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

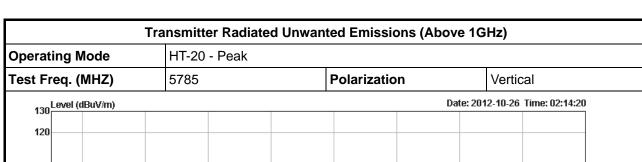
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

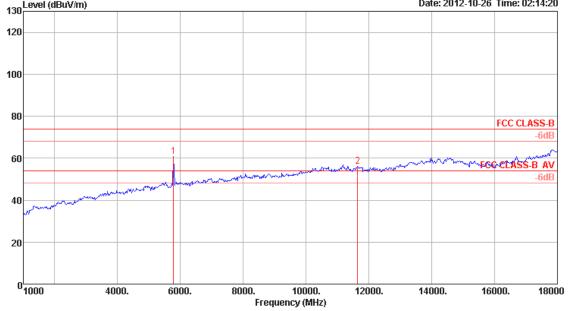
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Report No.: FR281405-03AB



	Freq	Level	Limit Line	Over Limit						A/Pos		/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg —	
1	5785.00	60.78	74.00	-13.22	56.63	4.42	34.93	35.20	Peak	100	Ø VER	TICAL
2	11644.00	56.20	74.00	-17.80	44.59	7.24	39.44	35.07	Peak	100	10 VER	TICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

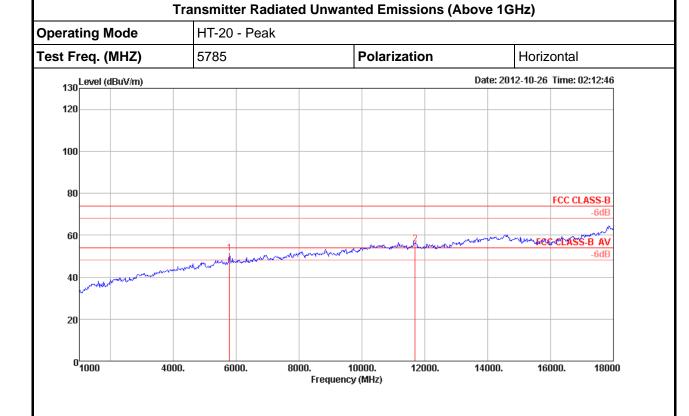
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Report No.: FR281405-03AB



	Freq	Level	Limit Line		Read Level				A/Pos		Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB	cm	deg	
1 2	5785.00 11693.00								100 100		HORIZONTAL HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

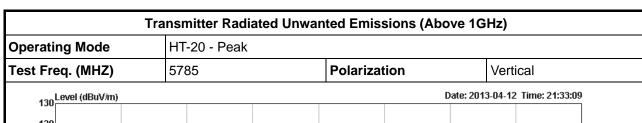
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

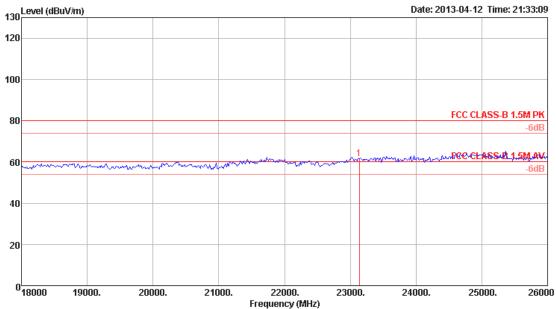
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Report No.: FR281405-03AB



	Freq	Level	Limit Line		Read Level					A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	——dB		cm	deg
1	23140.00	61.60	80.00	-18.40	43.28	14.90	38.70	35.28	Peak	100	315 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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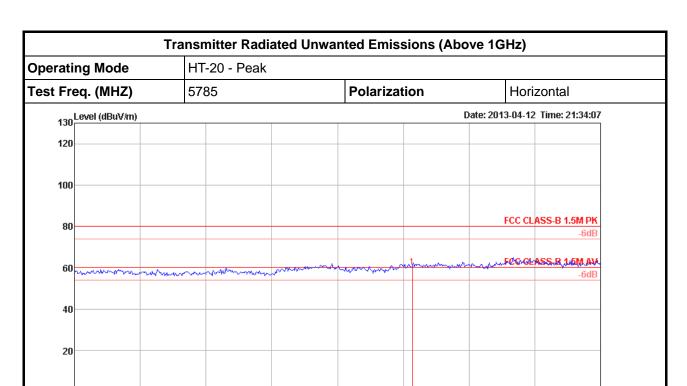
0¹18000

19000.

20000.

21000.

FCC and IC Radio Test Report



22000.

Frequency (MHz)

23000.

24000.

25000.

26000

Report No.: FR281405-03AB

	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	——dB	dBuV	dB	dB/m	——dB			deg
1	23140.00	60.20	80.00	-19.80	41.88	14.90	38.70	35.28	Peak	100	208 HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

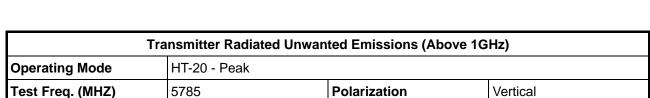
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

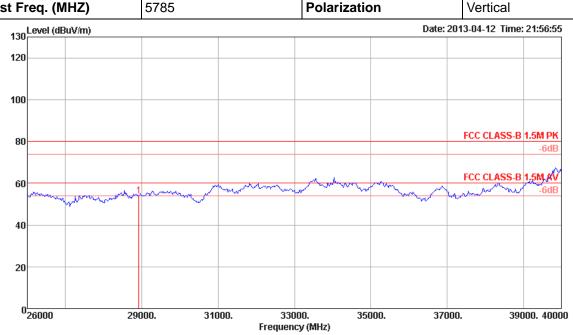
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit						A/Pos	-	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg	
1	28925.00	53.92	80.00	-26.08	44.89	11.31	39.85	42.13	Peak	100	93	VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

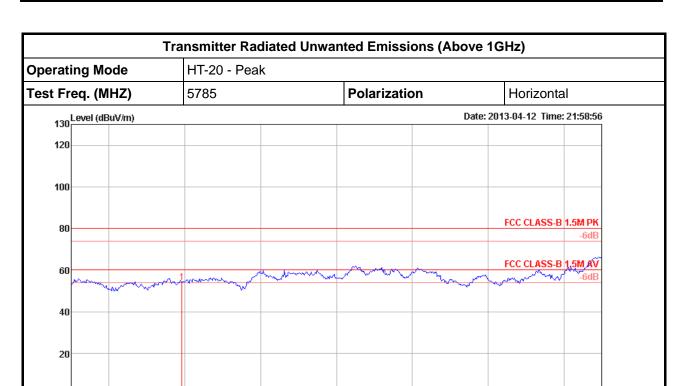
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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⁰26000

FCC and IC Radio Test Report



33000.

Frequency (MHz)

35000.

37000.

Report No.: FR281405-03AB

39000. 40000

	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phase
									- Tellar K		
	MHz	dBuV/m	dBuV/m	dB	dBu∀	dB	dB/m	dB		cm	deg
1	28925.00	53.83	80.00	-26.17	44.80	11.31	39.85	42.13	Peak	100	177 HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

31000.

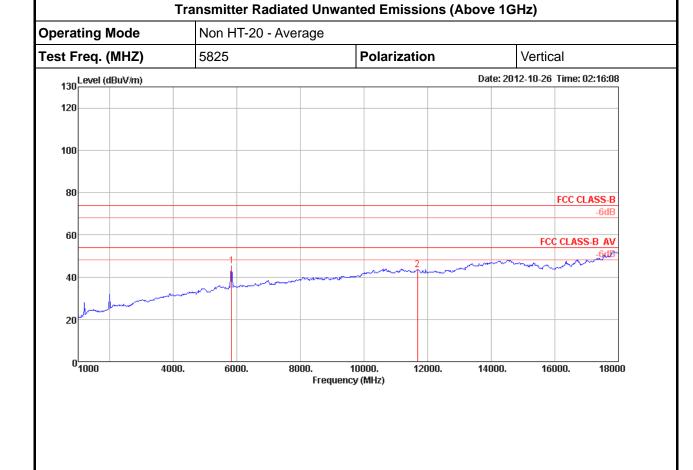
29000.

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg	-
1	5834.00								_	100	Ø VERTICAL	
2	11675.00	43.56	54.00	-10.44	31.99	7.20	39.43	35.06	Average	100	89 VERTICAL	_

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

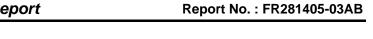
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

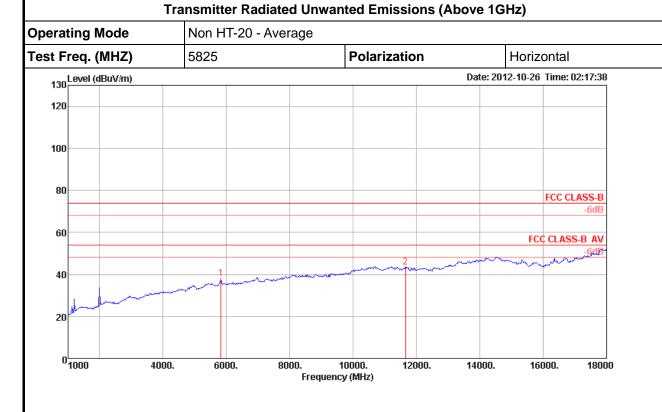
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit					A/Pos		Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	 cm	deg	
1 2	5825.00 11650.00								 100 100		HORIZONTAL HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

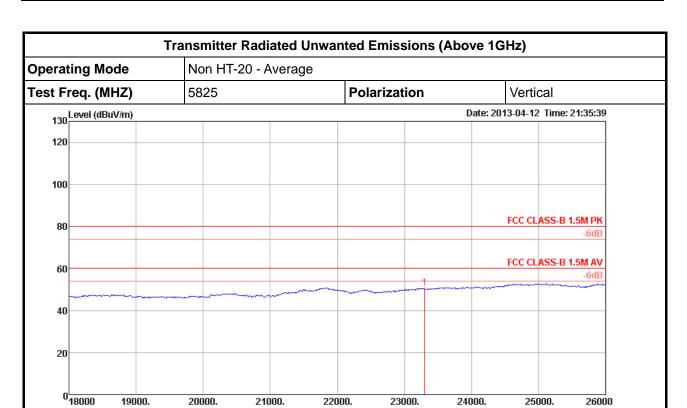
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Frequency (MHz)

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	Freq	Level	Limit Line		Read Level					A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg ————
1	23300.00	50.56	60.00	-9.44	31.77	15.05	38.70	34.96	Average	100	10 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

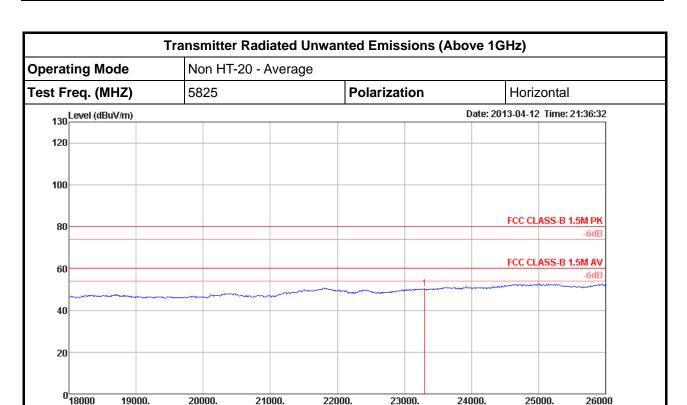
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Frequency (MHz)

Report No.: FR281405-03AB

	Freq	Level	Limit Line		Read Level					A/Pos	T/Pos Pol/Pha	ise
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg —	
1	23300.00	50.37	60.00	-9.63	31.58	15.05	38.70	34.96	Average	100	182 HORIZON	ITAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

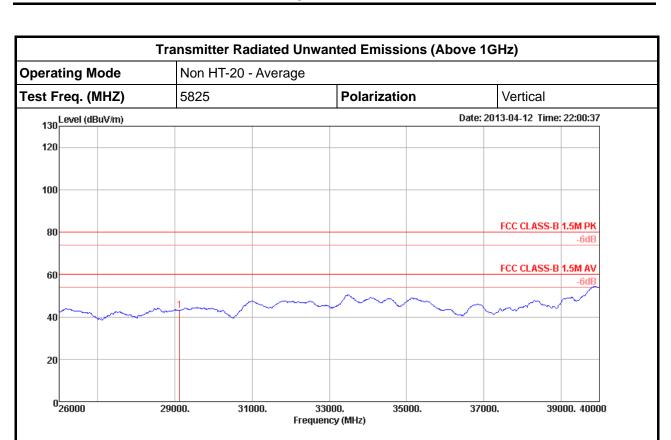
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line		Read Level					A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu∀	dB	dB/m	dB		cm	deg ———
1	29125.00	43.02	60.00	-16.98	33.93	11.38	39.93	42.22	Average	100	195 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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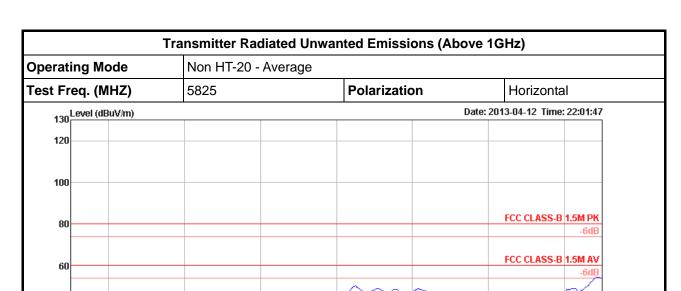
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FCC and IC Radio Test Report

29000.

31000.



33000.

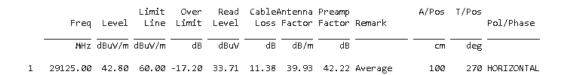
Frequency (MHz)

35000.

37000.

39000. 40000

Report No.: FR281405-03AB



Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

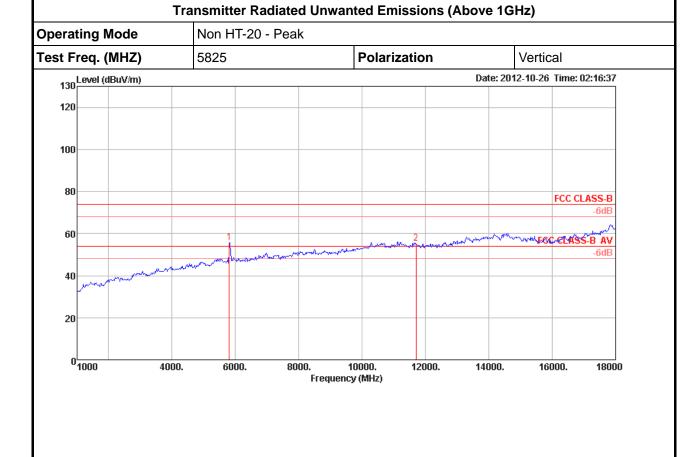
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit					A/Pos		Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1 2	5810.00 11699.00								100 100	_	VERTICAL VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

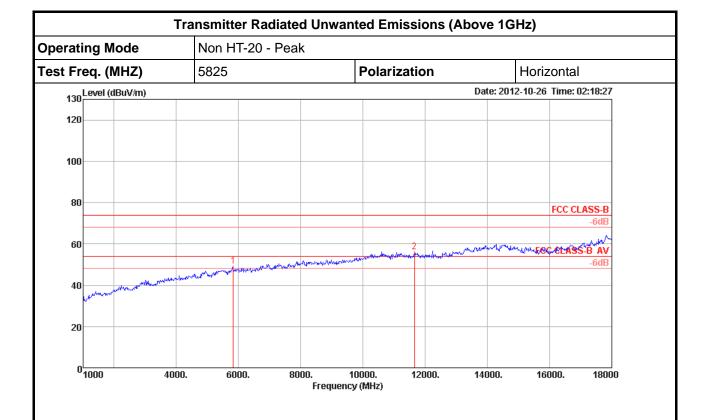
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit					A/Pos	T/P o s	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1 2	5825.00 11650.00								100 100		HORIZONTAL HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

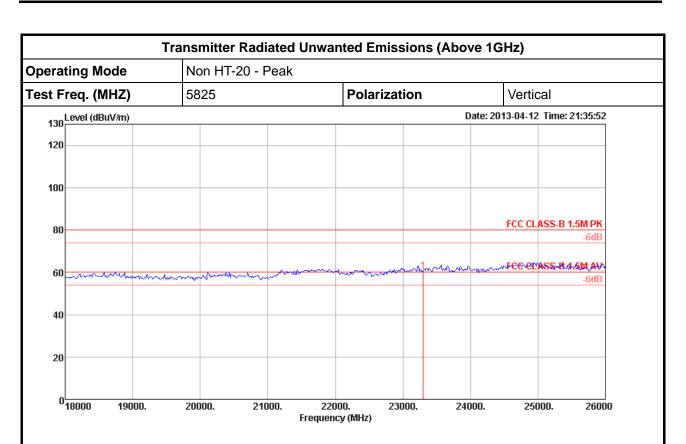
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line		Read Level					A/Pos	T/Pos Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg ———	
1	23300.00	60.57	80.00	-19.43	41.78	15.05	38.70	34.96	Peak	100	10 VERTICAL	

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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40

20

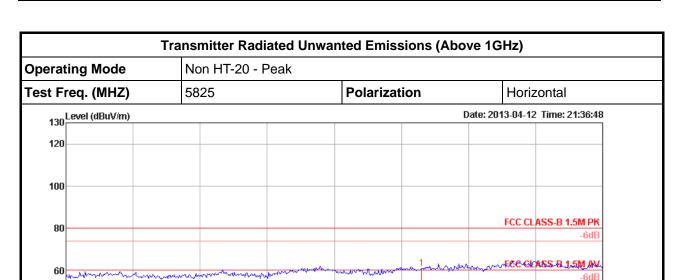
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19000.

20000.

21000.

FCC and IC Radio Test Report



22000.

Frequency (MHz)

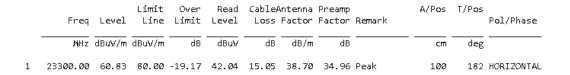
23000.

24000.

25000.

26000

Report No.: FR281405-03AB



Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

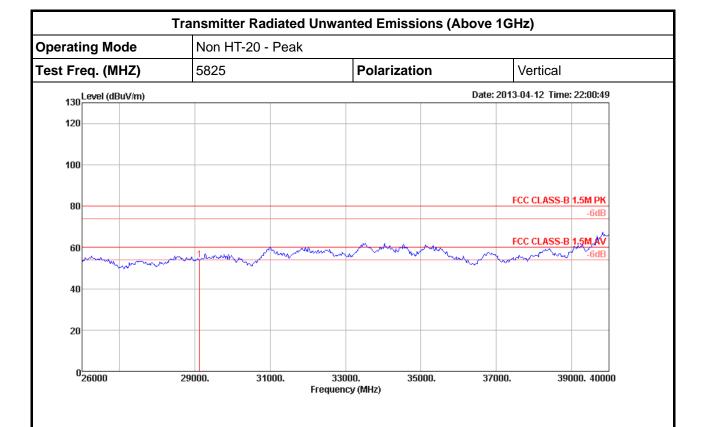
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line		Read Level					A/Pos		l/Phase
	MHz	dBuV/m	dBuV/m	——dB	dBuV	dB	dB/m	——dB			deg	
1	29125.00	54.09	80.00	-25.91	45.00	11.38	39.93	42.22	Peak	100	195 VEI	RTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

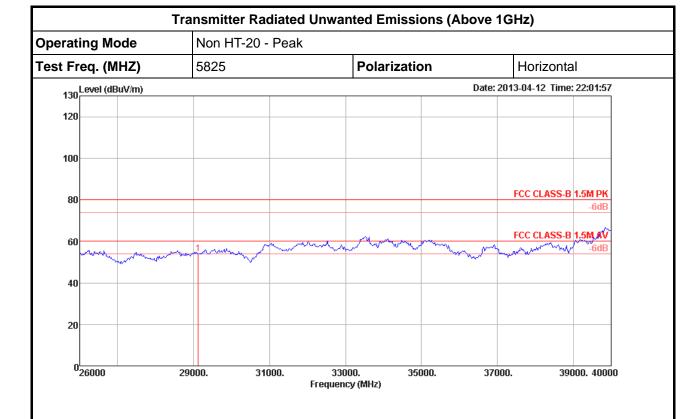
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	——dB	dBu∀	dB	dB/m	dB		cm	deg
1	29125.00	53.94	80.00	-26.06	44.85	11.38	39.93	42.22	Peak	100	270 HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

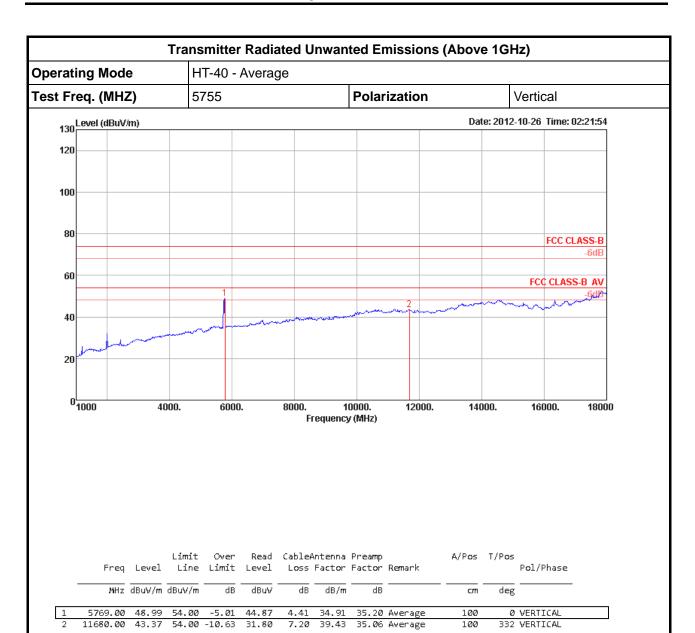
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

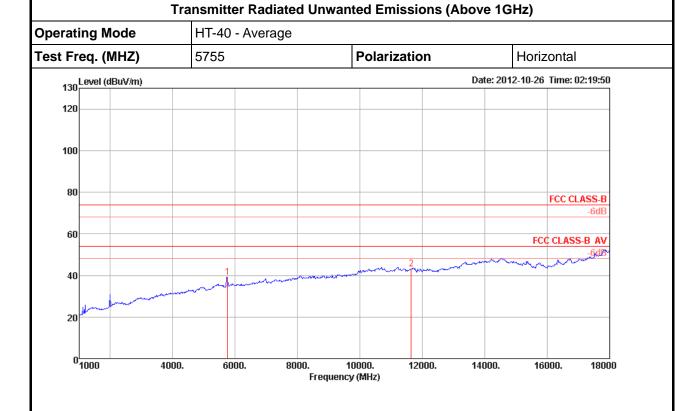
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit						A/Pos	T/Pos Pol/Phas	e
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg —	_
1 2	5755.00 11646.00								_	100 100	360 HORIZONT	

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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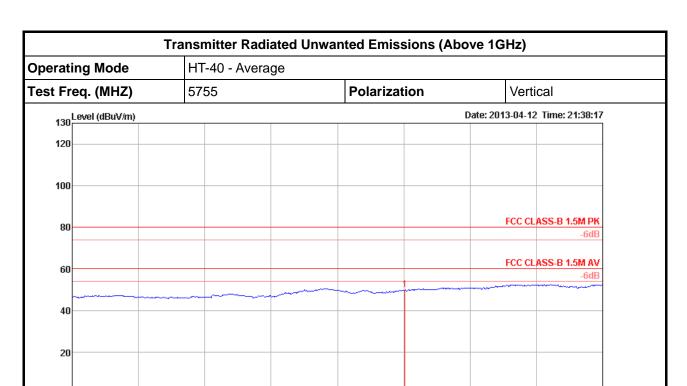
0¹18000

19000.

20000.

21000.

FCC and IC Radio Test Report



22000.

Frequency (MHz)

23000.

24000.

25000.

26000

Report No.: FR281405-03AB

	Freq	Level	Limit Line	Over Limit						A/Pos		Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	23020.00	49.85	60.00	-10.15	31.84	14.77	38.70	35.46	Average	100	168	VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

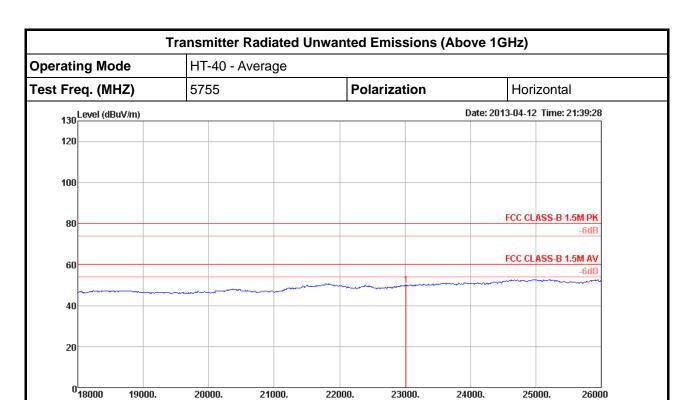
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20000.

21000.

19000.



22000.

Frequency (MHz)

23000.

24000.

25000.

26000

Report No.: FR281405-03AB

	Freq	Level		Over L imi t					Remark	A/Pos	T/Pos Pol/Phas	se
	MHz	dBuV/m	dBuV/m	dB	dBu√	dВ	dB/m	dB		cm	deg	—
1	23020.00	49.94	60.00	-10.06	31.93	14.77	38.70	35.46	Average	100	108 HORIZON	TAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

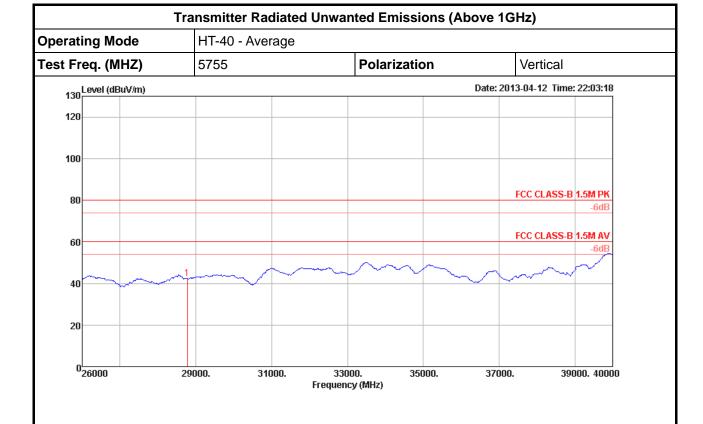
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit						A/Pos		l/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg	
1	28775.00	42.30	60.00	-17.70	32.92	11.24	39.76	41.62	Average	100	1 VE	RTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

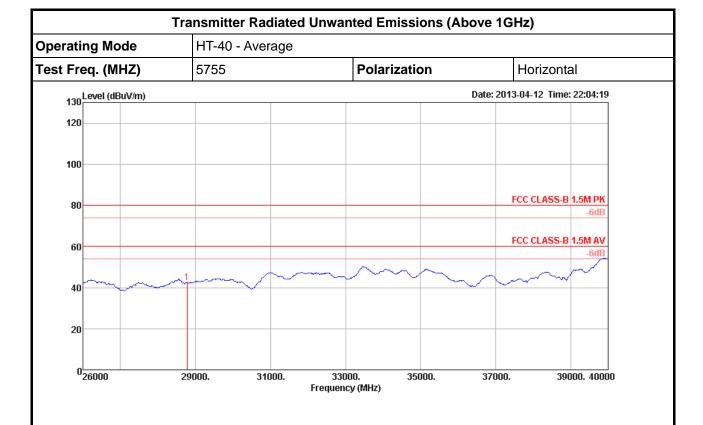
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line		Read Level					A/Pos	T/Pos Pol/Ph	ase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	28775.00	42.32	60.00	-17.68	32.94	11.24	39.76	41.62	Average	100	103 HORIZO	NTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

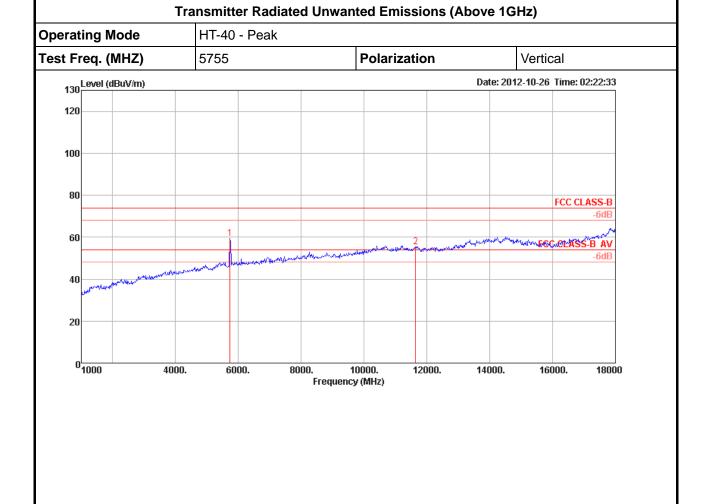
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit					A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB	 cm	deg
1 2	5735.00 11646.00								100 100	Ø VERTICAL 332 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

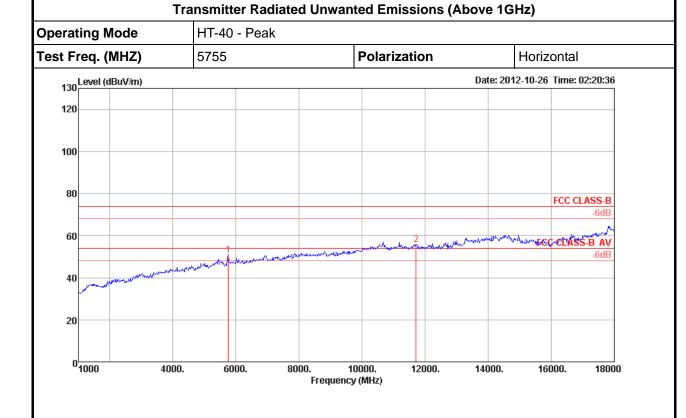
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit					A/Pos		Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	——dB	 cm	deg	
1 2	5755.00 11714.00								 100 100		HORIZONTAL HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

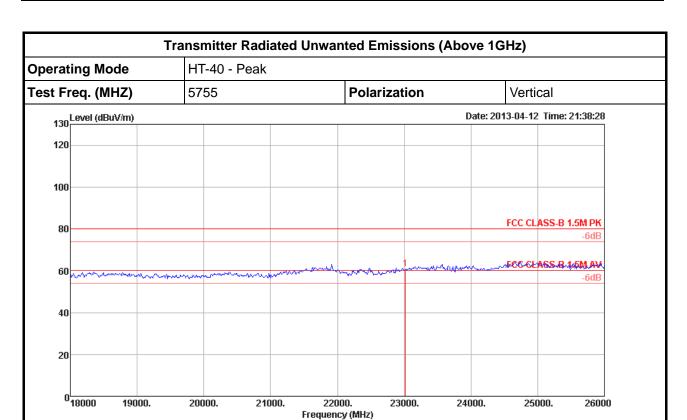
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level			Read Level					A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg
1	23020.00	60.69	80.00	-19.31	42.68	14.77	38.70	35.46	Peak	100	168 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

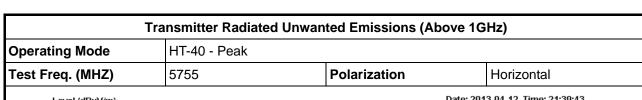
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

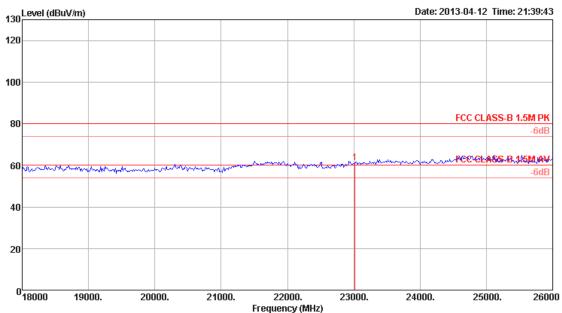
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit						A/Pos		P o l/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	23020.00	61.24	80.00	-18.76	43.23	14.77	38.70	35.46	Peak	100	108	HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

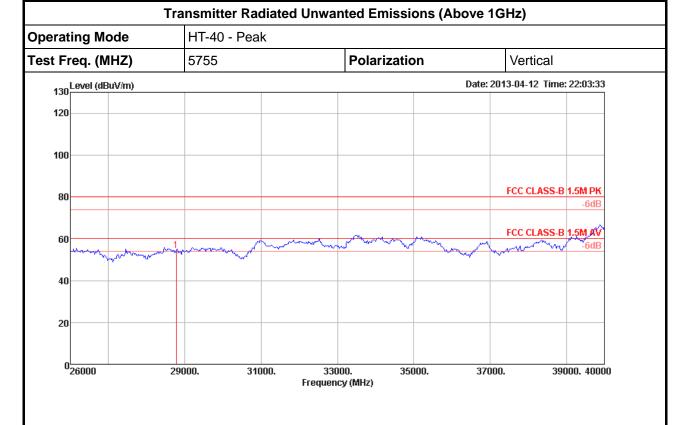
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phas	e
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg —	_
1	28775.00	54.46	80.00	-25.54	45.08	11.24	39.76	41.62	Peak	100	1 VERTICAL	

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

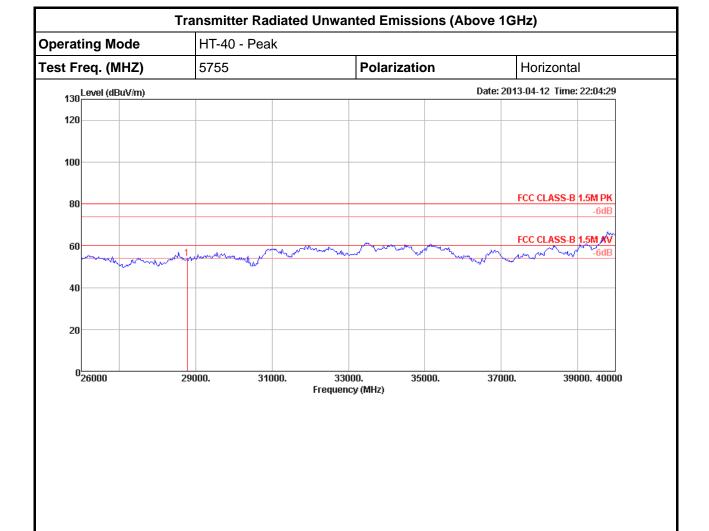
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit					Remark	A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg
1	28775.00	53.90	80.00	-26.10	44.52	11.24	39.76	41.62	Peak	100	103 HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

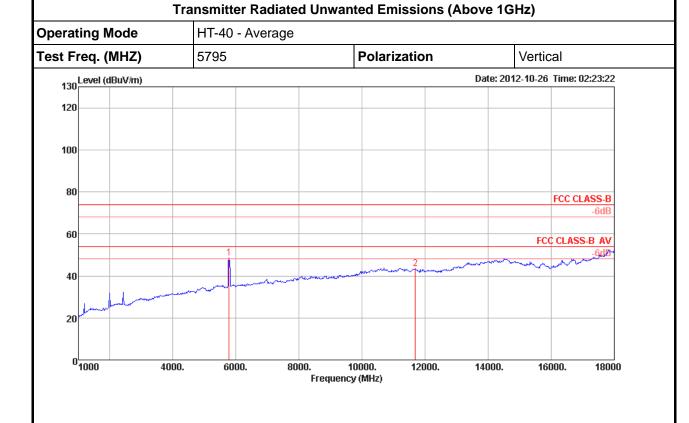
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit					A/Pos	T/Pos Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1 2	5786.00 11692.00								100 100	360 VERTICAL 147 VERTICAL	

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

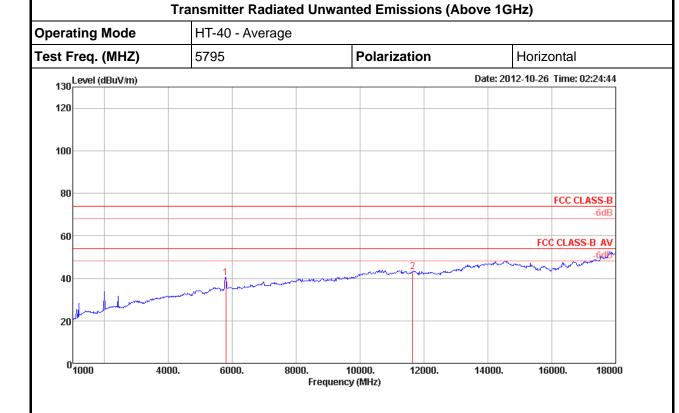
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg
1 2	5795.00 11641.00								_	100 100	Ø HORIZONTAL 32 HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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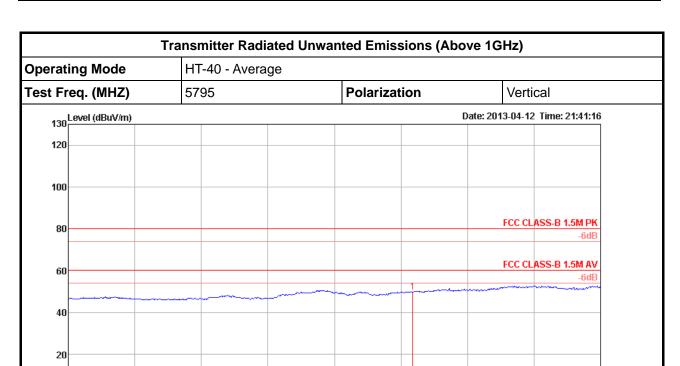
0^L 18000

19000.

20000.

21000.

FCC and IC Radio Test Report



22000.

Frequency (MHz)

23000.

24000.

25000.

26000

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	Freq	Level		Over Limit						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg
1	23180.00	49.71	60.00	-10.29	31.27	14.92	38.70	35.18	Average	100	Ø VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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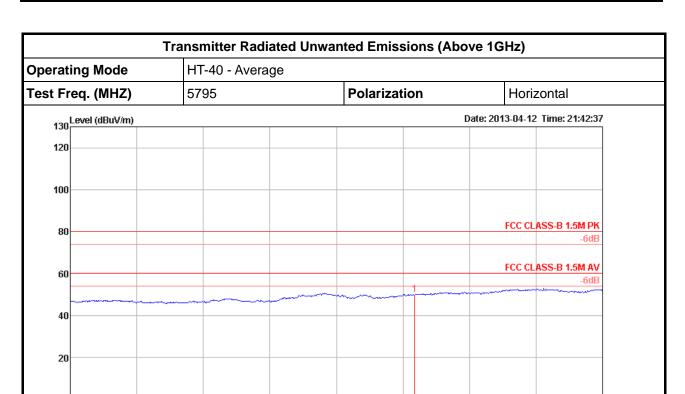
0¹18000

19000.

20000.

21000.

FCC and IC Radio Test Report



22000.

Frequency (MHz)

23000.

24000.

25000.

26000

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	Freq	Level		Over Limit						A/Pos	T/P o s P o l/Phase	2
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB			deg ———	_
1	23180.00	49.88	60.00	-10.12	31.44	14.92	38.70	35.18	Average	110	16 HORIZONTA	4L

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

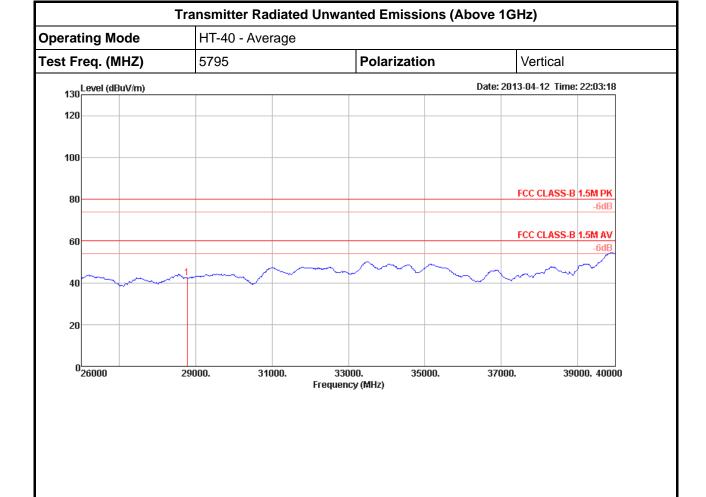
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit					Remark	A/Pos	T/Pos Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	28775.00	42.30	60.00	-17.70	32.92	11.24	39.76	41.62	Average	100	1 VERTICAL	

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

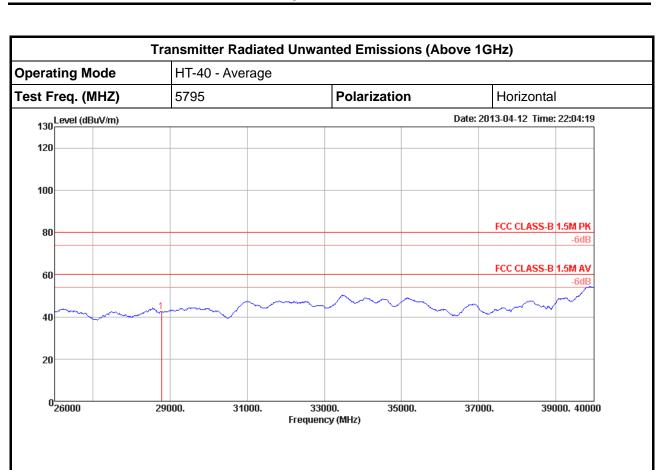
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit						A/Pos		Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg	
1	28775.00	42.32	60.00	-17.68	32.94	11.24	39.76	41.62	Average	100	103	HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

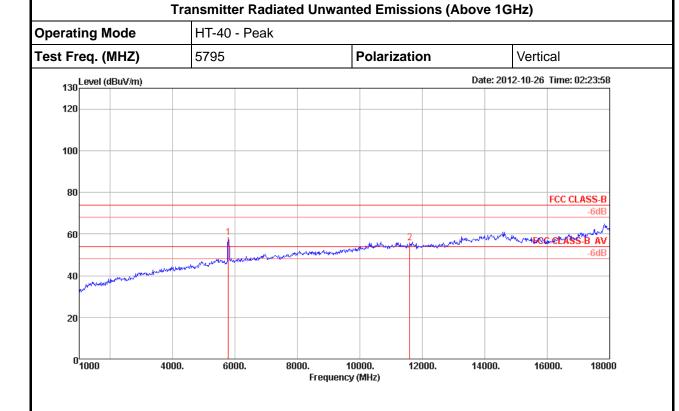
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Limit Over Read CableAntenna Preamp	A/Pos T/Pos
Freq Level Line Limit Level Loss Factor Factor Remar	k Pol/Phase
'	
MHz dBuV/m dBuV/m dB dBuV dB dB/m dB	<u></u>
4 F78C 00 F8 40 74 00 45 F8 F4 07 4 40 04 00 05 00 Deel.	100 DC0 MEDITON
1 5786.00 58.42 74.00 -15.58 54.27 4.42 34.93 35.20 Peak	100 360 VERTICAL
2 11590.00 55.64 74.00 -18.36 43.96 7.29 39.47 35.08 Peak	100 147 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

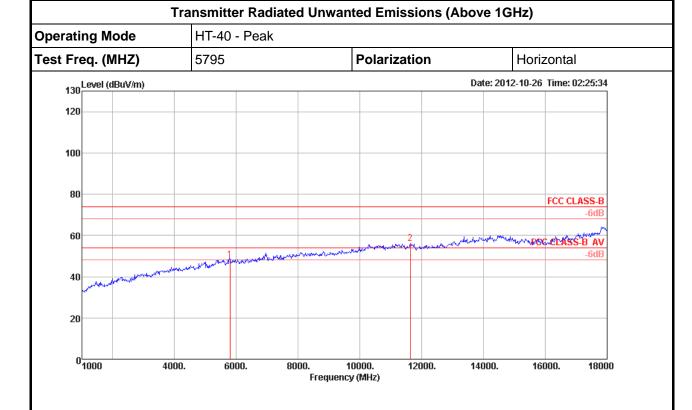
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg
1	5795.00	48.31	74.00	-25.69	44.15	4.42	34.94	35.20	Peak	100	Ø HORIZONTAL
2	11624.00	56.17	74.00	-17.83	44.55	7.24	39.45	35.07	Peak	100	32 HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

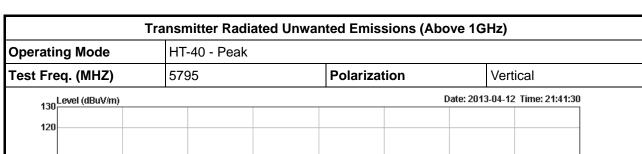
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

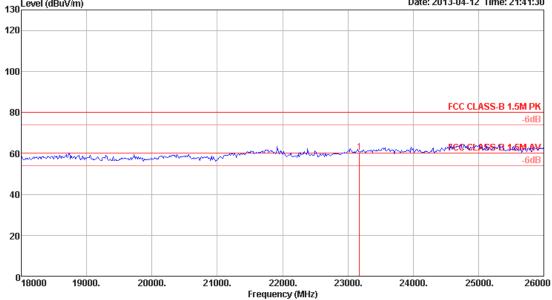
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line		Read Level					A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg
1	23180.00	60.58	80.00	-19.42	42.14	14.92	38.70	35.18	Peak	100	Ø VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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40

20

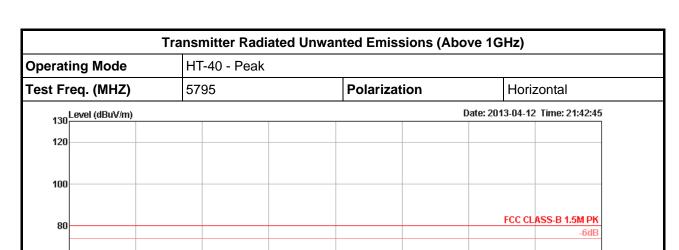
0^L 18000

19000.

20000.

21000.

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22000.

23000.

24000.

25000.

26000

	Freq	Level		Over Limit						A/Pos		Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB			deg	
1	23180.00	60.92	80.00	-19.08	42.48	14.92	38.70	35.18	Peak	110	16	HORIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

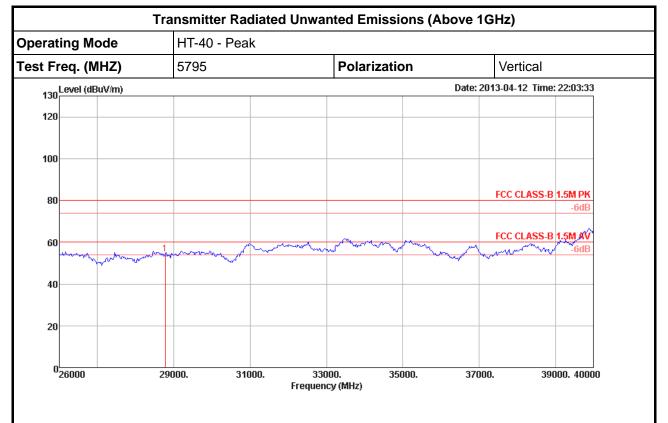
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level	Limit Line	Over Limit						A/Pos	T/Pos Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB		cm	deg
1	28775.00	54.46	80.00	-25.54	45.08	11.24	39.76	41.62	Peak	100	1 VERTICAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

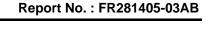
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

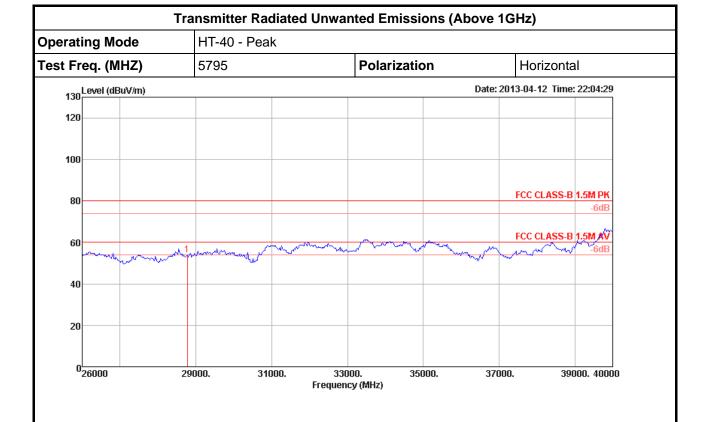
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	Freq	Level		Over Limit						A/Pos	-	l/Phase
	MHz	dBuV/m	dBuV/m	dB	dBu√	dB	dB/m	dB			deg	
1	28775.00	53.90	80.00	-26.10	44.52	11.24	39.76	41.62	Peak	100	103 HO	RIZONTAL

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100377	9kHz ~ 2.75GHz	Oct. 23, 2012	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Nov. 14, 2011	Conduction (CO01-CB)
V- LISN	Schwarzbeck	NSLK 8127	8127-478	9K ~ 30MHz	Jun. 22, 2012	Conduction (CO01-CB)
PULSE LIMITER	R&S	ESH3-Z2	100430	9K~30MHz	Feb. 03, 2012	Conduction (CO01-CB)
Signal analyzer	R&S	FSV40	100979	9KHz~40GHz	Oct. 08, 2012	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 05, 2012	Conducted (TH01-CB)
RF Power Divider	HP	11636A	00306	2GHz ~ 18GHz	N.C.R	Conducted (TH01-CB)
RF Power Splitter	Anaren	44100	1839	2GHz ~ 18GHz	N.C.R	Conducted (TH01-CB)
RF Power Splitter	Anaren	42100	17930	2GHz ~ 18GHz	N.C.R	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Jan. 11, 2012	Radiation (03CH01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Jan. 10, 2013	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEA K	BBHA 9170	BBHA91702 52	15GHz ~ 40GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Jul. 31, 2012	Radiation (03CH01-CB)

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Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Remark
Spectrum analyzer	R&S	FSP40	100056	9KHz~40GHz	Nov. 02, 2012	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Mar. 20, 2012	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Mar. 19, 2013	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Oct. 29, 2012	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N.C.R	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation
		9	. ,,			(03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation
						(03CH01-CB) Radiation
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 18, 2012	(03CH01-CB)
						Radiation
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 18, 2012	(03CH01-CB)

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Note: Calibration Interval of instruments listed above is one year. N.C.R. means Non-Calibration required.

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