

Prüfbericht-Nr.: Test Report No.:	50062633 002	Auftrags-Nr Order No.:	164077890	Seite 1 von Page 1 of
Kunden-Referenz-Nr.: Client Reference No.:	N/A	Auftragsdat Order date:	:um: 03.11.2016	
Auftraggeber: Client:	SWANN COMMUN CENTRAL, HONG	ICATIONS LIMITED, RM	11601, 249-255 DES	VOEUX ROAD,
Prüfgegenstand: Test item:	Swann Wireless HI	Smart Security Camera	1	
Bezeichnung / Typ-Nr.: Identification / Type No.:	SWWHD-INTCAM			
Auftrags-Inhalt: Order content:	FCC approval			
Prüfgrundlage: Test specification:	CFR47 FCC Part 15: CFR47 FCC Part 15: CFR47 FCC Part 15:	Subpart C Section 15.407 Subpart C Section 15.207 Subpart C Section 15.209 Subpart B Section 15.107 Subpart B Section 15.109 447498 D01 v06		
Wareneingangsdatum: Date of receipt:	03.11.2016			
Prüfmuster-Nr.: Test sample No.:	D161109357, D161	109358	Refer to photo documents	
Prüfzeitraum: Testing period:	20.11.2016 - 24.03.	2017		
Ort der Prüfung: Place of testing:	BTL Inc.			
Prüflaboratorium: Testing laboratory:	TÜV Rheiniand (She	enzhen)		
Prüfergebnis*: Test result*:	Pass			
geprüft von / tested by:	lon	kontrolliert v	on I reviewed by:	rties
	roject Engineer	04.07.2017	Sam Lin / Technical C	ertifier
Datum Name / Stellu Date Name / Positio			Name / Stellung Name / Position	Unterschrift Signature
Sonstiges / Other: This report is for NII equip FCC ID:2AKPISWWHDIN	TCAM			
Zustand des Prüfgegens Condition of the test item	at delivery:	Test item con	ollständig und unbesonplete and undamage	ed
Legende: 1 = sehr gut P(ass) = entspricht o.g	_	riedigend entspricht nicht o.g. Prüfgrundlage	4 = ausreichend (n) N/A = nicht anwendbar	5 = mangelhaft N/T = nicht getestet
Legend: 1 = very good	2 = good $3 = sat$	isfactory	4 = sufficient	5 = poor



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TEST SUMMARY

5.1.1 DUTY CYCLE

RESULT: Pass

5.1.2 MAXIMUM CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 26DB BANDWIDTH, 6DB BANDWIDTH AND 99% BANDWIDTH

RESULT: Pass

5.1.4 POWER SPECTRAL DENSITY

RESULT: Pass

5.1.5 UNWANTED EMISSION

RESULT: Pass

5.1.6 RADIATED EMISSIONS

RESULT: Pass

5.1.7 CONDUCTED EMISSIONS

RESULT: Pass

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1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of Wi-Fi operation for U-NII-1 band and U-NII-3 band

Appendix B: Test Results of RF Exposure

2. Test Sites

2.1 Test Facilities

BTL Inc.

(FCC Registration No.: 319330 & IC Registration Number: 4428B-1) No. 3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, China

The tests at the test site have been conducted under the supervision of a TÜV engineer.



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2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Туре	S/N	Calibrated until
Radio Spectrum – 6 dE	I .	• • •	•	•
Spectrum Analyzer	R&S	FSP 40	100185	Sep. 04, 2017
Radio Spectrum – Pea	k Output Power		1	· · · · · ·
P-series Power meter	Agilent	N1911A	MY45100473	Mar. 26, 2018
Wireband Power		NAOOA A	MV/54400044	·
sensor	Agilent	N1921A	MY51100041	Mar. 26, 2018
Radio Spectrum - Anto	enna Conducted Spuri	ous Emission		
Spectrum Analyzer	R&S	FSP 40	100185	Sep. 04, 2017
Radio Spectrum - Pow	er Spectral Density			
Spectrum Analyzer	R&S	FSP 40	100185	Sep. 04, 2017
Radio Spectrum – Fred	quency Stability Meas	urement		•
Spectrum Analyzer	R&S	FSP 40	100185	Sep. 04, 2017
Precision Oven Tester	HOLINK	H-T-1F-D	BA03101701	Sep. 04, 2017
Conducted emissions				
50Ω Terminator	SHX	TF2-3G-A	8122901	Mar. 26, 2018
TWO-LINE V-	R&S	ENIVO46	100506	
NETWORK	Ras	ENV216	100526	Mar. 26, 2018
EMI Test Receiver	R&S	ESR3	101862	Sep. 04, 2017
Artificial-Mains	SCHWARZBECK	NSLK 8127	8127685	Sep. 04, 2017
Network				<u> </u>
Cable	N/A	RG400 12m	N/A	Mar. 09, 2018
Measurement	Farad	EZ-EMC	N/A	N/A
Software		Ver.NB-03A1-01	14/74	14/74
Spurious Emissions ar				
Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 26, 2018
Amplifier	HP	8447D	2944A09673	Oct. 20, 2017
Receiver	Agilent	N9038A	MY52130039	Sep. 04, 2017
Controller	CT	SC100	N/A	N/A
Controller	MF	MF-7802	MF780208416	N/A
Measurement	Farad	EZ-EMC	N/A	N/A
Software		Ver.NB-03A1-01		
Amplifier	Agilent	8449B	3008A02274	Mar. 09, 2018
Receiver	Agilent	N9038A	MY52130039	Sep. 04, 2017
Antenna	EM	EM-6876-1	230	Jul. 08, 2017
Controller	СТ	SC100	N/A	N/A
Controller	MF	MF-7802	MF780208416	N/A
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Apr. 22, 2018
Spectrum Analyzer	R&S	FSP40	100185	Sep. 04, 2017
Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 26, 2018
Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

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2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table,

Items		Extended Uncertainty
CE	Disturbance Voltage (dBuV)	U=2.32dB, k=2, σ=95%
RE (9kHz-30MHz)	Field strength (dBuV/m)	U=3.79dB, k=2, σ=95%
RE (30-1000MHz)	Field strength (dBuV/m)	U=4.10dB, k=2, σ=95%
RE (above 1000MHz)	Field strength (dBuV/m)	U=4.15dB, k=2, σ=95%

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The BTL Inc. facility located at No. 3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

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3. General Product Information

3.1 Product Function and Intended Use

The EUT is wireless camera. It supports 802.11 a/b/g/n wireless technologies. The EUT supports the following funtions:

• Wireless access in the 2.4GHz band or 5GHz band

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

Technical Specification	Value
Kind of Equipment:	Swann Wireless HD Smart Security Camera
Type Designation:	SWWHD-INTCAM
FCC ID:	2AKPISWWHDINTCAM
IC:	
HVIN:	
Type of Equipment:	Class B digital equipment
Equiupment Class:	NII
Wireless Technology:	Wi-Fi
Operating Frequency Range:	U-NII-1 Band: 5180-5240 MHz U-NII-3 Band: 5745-5825 MHz
Channel Number:	U-NII-1 Band: 4 channels for 20MHz bandwidth 2 channels for 40MHz bandwidth U-NII-3 Band: 5 channels for 20MHz bandwidth 2 channels for 40MHz bandwidth
Channel Separation:	20MHz
Type of Modulation:	OFDM for Wi-Fi 802.11a/n
Operating Voltage:	DC 3.8V via internal Lithium battery DC 5V via USB port for battery charging
Operating Temperature Range:	0°C to 40°C
Antenna Type:	Integrated PIFA Antenna for WiFi
Smart Antenna Systems:	Not Applicable
Number of Antenna:	1 for Wi-Fi
Antenna Gain:	Max. 3 dBi for Wi-Fi Antenna



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Table 3: List of Radio Frequency Channel, Wi-Fi 802.11 a/n 20MHz bandwidth

U-NII-1 Band					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
36	5180.00	40	5200.00	44	5220.00
48	5240.00				
U-NII-3 Band					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
149	5745.00	153	5765.00	157	5785.00
161	5805.00	165	5825.00		

Table 4: List of Radio Frequency Channel, Wi-Fi 802.11 n 40MHz bandwidth

U-NII-1 Band					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
38	5190.00	46	5230.00		
U-NII-3 Band		<u>.</u>			
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
151	5755.00	159	5795.00		

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3.3 Independent Operation Modes

The basic operation modes are:

- A. Transmitting
 - 1. Low Channel
 - 2. Mid Channel
 - 3. High Channel
- B. Receiving
 - 1. Low Channel
 - 2. Mid Channel
 - 3. High Channel
- C. Battery charging via USB port
- D. Standby
- E. Off

Table 5: List of Wi-Fi operation modes

Mode	Wi-Fi Operation					
Antenna		Single				
Bandwidth	20	40	80			
802.11a	$\sqrt{}$	X	X			
802.11n	$\sqrt{}$	$\sqrt{}$	х			
802.11ac	х	х	х			

Note:

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material	- Circuit Diagram
- PCB Layout	- Instruction Manual
- Photo Document	- Rating Label

^{1.} The EUT support HT20 and HT40.

^{2. 802.11}n support MCS0 ~ MCS7 data rates.

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4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5.

Test software 'MP Tool' provided by the applicant was used to control the operating channels as well as output power for Wi-Fi operation.

Table 6: List of Frequencies under Test, Wi-Fi operation

Operation Band	802.11a and 802.11n HT20		802.11n HT40	
Operation Band	Channel number	Frequency (MHz)	Channel number	Frequency (MHz)
	36	5180.00	38	5190.00
U-NII-1	40	5200.00	46	5230.00
	48	5240.00		
U-NII-3	149	5745.00	151	5755.00
	157	5785.00	159	5795.00
	165	5825.00		



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Table 7: List of Operation mode under Test, Wi-Fi operation

Configuration	Data Rates	Transmit Chain
Transmit Chain - 1TX_Non-Beamforming		
802.11a	6Mbps	ANT 1
802.11n HT20	MCS0	ANT 1
802.11n HT40	MCS0	ANT 1

Note:

Preliminary tests were performed in different data rate and antenna chain to find the worst case. The data rate and antenna chain shown in the table is the worst case.

Table 8: Power level setting of U-NII-1 band in test software

Power Level Setting in Test Software					
Configuration	802.11a	802.11n HT20			
Transmit Chain	1TX	1TX			
Channel 36	13	13	Not applicable		
Channel 40	17	17			
Channel 48	17	17			
Configuration	802.11n HT40				
Transmit Chain	1TX	Not applicable			
Channel 38	12	Not applicable			
Channel 46	17				

Table 9: Power level setting of U-NII-3 band in test software

Power Level Setting in Test Software							
Configuration	802.11a	802.11n HT20					
Transmit Chain	1TX	1TX					
Channel 149	17	17	Not applicable				
Channel 157	17	17					
Channel 165	17	17					
Configuration	802.11n HT40						
Transmit Chain	1TX	Not applicable					
Channel 151	17	Not applicable					
Channel 159	17						



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4.3 Special Accessories and Auxiliary Equipment

Table 10: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Remark
Laptop PC	DELL	745	G7K832X	FCC DOC
AC/DC Adapter	Dongguan City Yingju Eelectronics Co., Ltd.	YJC010W- 0502000U	N/A	Input: AC 100-240 V, 50/60Hz Output: 5.0V DC

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

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4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1 GHz)

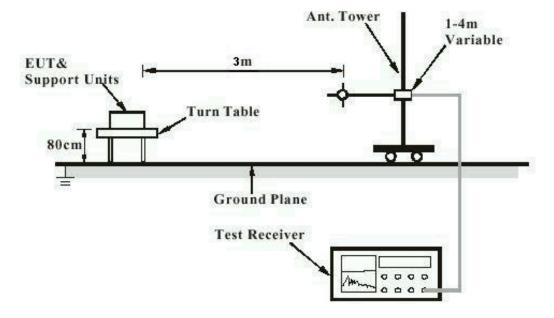
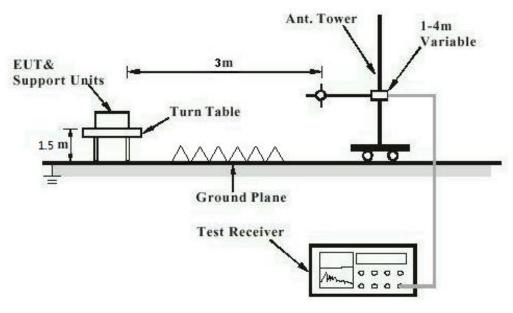


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)





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Diagram of Measurement Equipment Configuration for Conduction Measurement

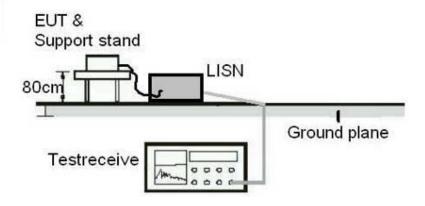
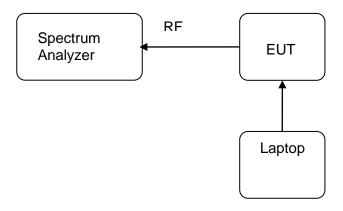


Diagram of Measurement Equipment Configuration for Transmitter Measurement





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5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Duty Cycle

RESULT: Pass

Date of testing : 2016-11-20 to 2017-03-24

: FCC Part 15.407 : ANSI C63.10:2013 Test standard Basic standard

KDB 789033 D02 v01r03

Kind of test site : Shielded room

Test setup

Test Channel : One channel for all data rates
Operation Mode : A
Ambient temperature : 22°C
Relative humidity : 51%
Atmospheric pressure : 101.0 kPa

Table 11: Test result of Duty Cycle

Mode	Data rate Mbps	T _{on} (ms)	T _{Total} (ms)	Duty Cycle	Duty Cycle Factor
802.11a	6	1.395	1.505	0.93	0.33
802.11n HT20	MCS0	1.310	1.415	0.93	0.33
802.11n HT40	MCS0	0.620	0.690	0.90	0.46



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5.1.2 Maximum Conducted Output Power

RESULT: Pass

2016-11-20 to 2017-03-24 Date of testing Test standard : FCC Part 15.407(a)

: ANSI C63.10:2013 Basic standard

KDB 789033 D02 v01r03

: 1Watt (30dBm) for AP Limit

250mW (24dBm) for mobile and portable client device

Kind of test site Shielded room

Test setup

Test Channel CH36, CH40, CH48, CH149, CH157, CH165 for 20MHz

CH38, CH46, CH151, CH159 for 40MHz

Operation Mode Ambient temperature : 22°C Relative humidity : 51% : 51% Relative humidity Atmospheric pressure : 101.0 kPa



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5.1.3 26dB Bandwidth, 6dB Bandwidth and 99% Bandwidth

RESULT: Pass

2016-11-20 to 2017-03-24 Date of testing Test standard FCC Part 15.407(e) Basic standard ANSI C63.10:2013

KDB 789033 D02 v01r03

Limit at least 500kHz for U-NII-3 band

No requirement for U-NII-1 band

Shielded room Kind of test site

Test setup

Test Channel CH36, CH40, CH48, CH149, CH157, CH165 for 20MHz

CH38, CH46, CH151, CH159 for 40MHz

Operation Mode Α Ambient temperature : Relative humidity : 22°C Relative humidity : 51% Atmospheric pressure : 101.0 kPa

Table 12: Test result of 26dB Bandwidth and 99% Bandwidth for U-NII-1 band

Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Verdict			
802.11a							
36	5180	20.19	16.80	Pass			
40	5200	28.99	17.10	Pass			
48	5240	25.45	17.00	Pass			
802.11n H	Γ20						
36	5180	19.51	17.70	Pass			
40	5200	29.29	17.80	Pass			
48	5240	27.30	17.90	Pass			
802.11n H	802.11n HT40						
38	5190	40.99	36.40	Pass			
46	5230	70.30	37.20	Pass			



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Table 13: Test result of 6dB Bandwidth and 99% Bandwidth for U-NII-3 band

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Verdict		
802.11a						
149	5745	15.75	16.40	Pass		
157	5785	15.15	16.50	Pass		
165	5825	15.50	16.50	Pass		
802.11n H	Γ20					
149	5745	14.80	17.70	Pass		
157	5785	14.50	17.60	Pass		
165	5825	15.25	17.70	Pass		
802.11n HT40						
151	5755	34.10	36.20	Pass		
159	5795	32.80	36.20	Pass		



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5.1.4 Power Spectral Density

RESULT: Pass

Date of testing : 2016-11-20 to 2017-03-24

Test standard : FCC part 15.407(a)
Basic standard : ANSI C63.10:2013

KDB 789033 D02 v01r03

Limit : 17dBm/MHz for U-NII-1

30dBm/500kHz for U-NII-3

Kind of test site : Shield room

Test setup

Test Channel : CH36, CH40, CH48, CH149, CH157, CH165 for 20MHz

CH38, CH46, CH151, CH159 for 40MHz

Operation mode : A.1
Ambient temperature : 23°C
Relative humidity : 48%
Atmospheric pressure : 101kPa

Table 14: Test Results for Power Spectral Density for U-NII-1 band

1TX	Measure	d PSD (di	Bm/MHz)	Total PS	D (dBm/N	1Hz)	Limit	Verdict
Channel	Ch 36	Ch 40	Ch 48	Ch 36	Ch 40	Ch 48	(dBm/MHz)	
802.11a_6Mbps	2.73	6.11	6.53	3.06	6.44	6.86	17.00	PASS
802.11n_HT20_ MCS0	1.30	4.82	5.99	1.63	5.15	6.32	17.00	PASS
		Ch 46	-	Ch 38	Ch 46		Limit (dBm/MHz)	Verdict
802.11n_HT40_ MCS0	-0.70	4.61		-0.24	5.07		17.00	PASS

Table 15: Test Results for Power Spectral Density for U-NII-3 band

1TX	Measure	d PSD (dE	3m/500kHz)	Total PS	D (dBm/500	kHz)	Limit	Verdict	
Channel	Ch 149	Ch 157	Ch 165	Ch 149	Ch 157	Ch 165	(dBm/500kHz)	verdict	
802.11a_6Mbps		1.84	2.08	-0.01	-0.83	-0.59	30.00	PASS	
802.11n_HT20_ MCS0	2.41	2.36	1.64	-0.26	-0.31	-1.03	30.00	PASS	
	Ch 151	Ch 159		Ch 151	Ch 159		Limit (dBm/500kHz)	Verdict	
802.11n_HT40_ MCS0	0.94	0.89		-1.6	-1.65		30.00	PASS	



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5.1.5 Unwanted Emission

RESULT: Pass

Date of testing 2016-11-20 to 2017-03-24

Test standard : FCC part 15.407(b)

FCC part 15.209

: ANSI C63.10:2013 Basic standard

KDB 789033 D02 v01r03

Limits -27dBm/MHz outside 5150-5250MHz

-17dBm/MHz within 5715-5725MHz and 5850-5860MHz

-27dBm/MHz outside 5715-5860MHz

All emissions in the restricted bands must comply with FCC

15.209(a)

Kind of test site 3m Semi-Anechoic Chamber

Test setup

Test Channel CH36, CH40, CH48, CH149, CH157, CH165 for 20MHz

CH38, CH46, CH151, CH159 for 40MHz

Operation mode A.1 Ambient temperature : 23°C Relative humidity : 48% Atmospheric pressure : 101.0 kPa

Radiated measurement were performed, EIRP is converted to field strength as follow:

EIRP(dBm) = E(dBuV/m)-95.2



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5.1.6 Radiated Emissions

RESULT: Pass

Date of testing 2016-11-20 to 2017-03-24

Test standard FCC Part 15.109 : : : Basic standard
Frequency range ANSI C63.4:2014 30 – 6000MHz FCC Part 15.109(a) Limits

Kind of test site 3m Semi-Anechoic Chamber

Test Setup

Input Voltage DC 5V (via USB port)

Operation Mode Operation Mode : C
Ambient temperature : 23°C
Relative humidity : 48%
Atmospheric pressure : 101.0 kPa



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5.1.7 Conducted Emissions

RESULT: Pass

Date of testing : 2016-11-20 to 2017-03-24
Test standard : FCC Part 15.207
FCC Part 15.107

FCC Part 15.107

Basic standard : ANSI C63.4:2014
Frequency range : 0.15MHz – 30MHz
Limits : FCC Part 15.207(a)

FCC Part 15.107(a)

Kind of test site : Shield Room

Test Setup

Input Voltage : DC 5V (via USB port)
Operation Mode : A+B+C
Ambient temperature : 23°C
Relative humidity : 50%
Atmospheric pressure : 101.0 kPa



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6. Photographs of the Test Set-Up

Photograph 1: Set-up for Spurious Emissions (9 kHz-30MHz)



Photograph 2: Set-up for Spurious Emissions (30MHz-1GHz)





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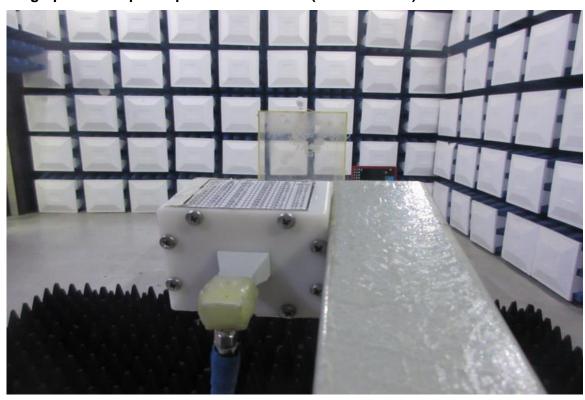
Test Report No.

Seite 24 von 27Page 24 of 27

Photograph 3: Set-up for Spurious Emissions (1GHz-18GHz)



Photograph 4: Set-up for Spurious Emissions (18GHz-40GHz)





Prüfbericht - Nr.: 50062633 002

Test Report No.

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Photograph 5: Set-up for Conducted Emissions



Photograph 6: Set-up for Radiated Emissions, below 1GHz





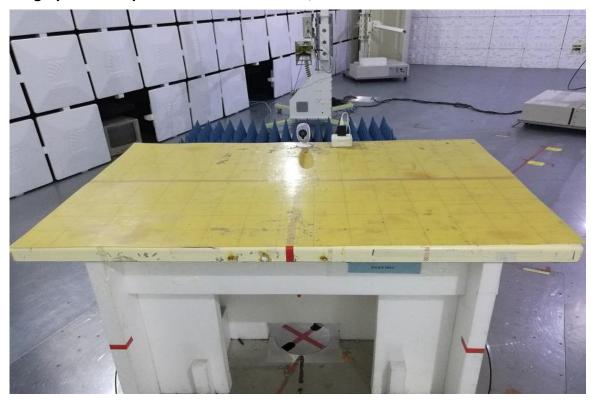
Products

Prüfbericht - Nr.: 50062633 002

Seite 26 von 27 *Page 26 of 27*

Test Report No.

Photograph 7: Set-up for Radiated Emissions, above 1GHz





Products

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 50062633 002

 Test Report No.
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Appendix A

Test Results of Wi-Fi operation for U-NII-1 Band and U-NII-3 Band

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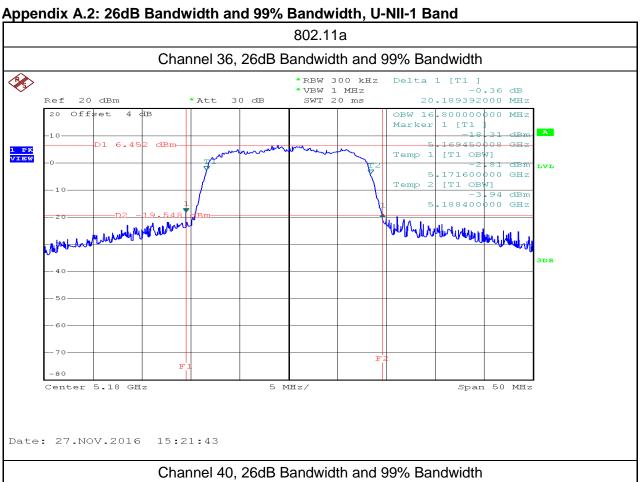
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Appendix A.1: Maximum Conducted Output Power, U-NII-1 Band

1TX	Measur	ed Powe	r (dBm)	Tota	Power (d	dBm)	Limit	Verdict
Channel	Ch 36	Ch 40	Ch 48	Ch 36	Ch 40	Ch 48	(dBm)	verdict
802.11a_6Mbp s	12.83	16.48	16.97	13.16	16.81	17.30	30.00	PASS
802.11n_HT20 _MCS0	12.59	16.38	17.01	12.92	16.71	17.14	30.00	PASS
Channel	Ch 38	Ch 46		Ch 38	Ch 46		Limit (dBm)	Verdict
802.11n_HT40 _MCS0	11.77	16.93		12.33	17.39		30.00	PASS

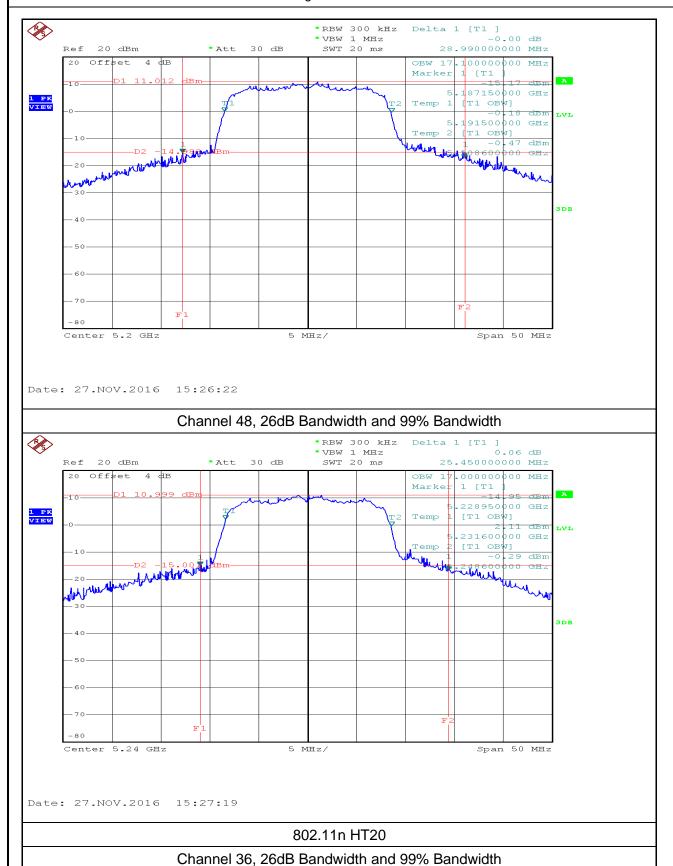


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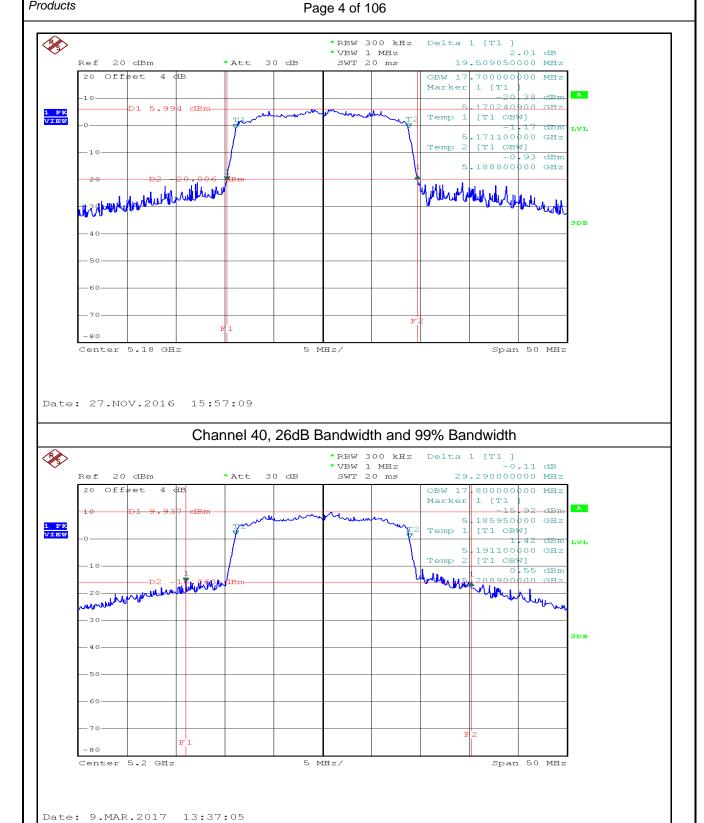
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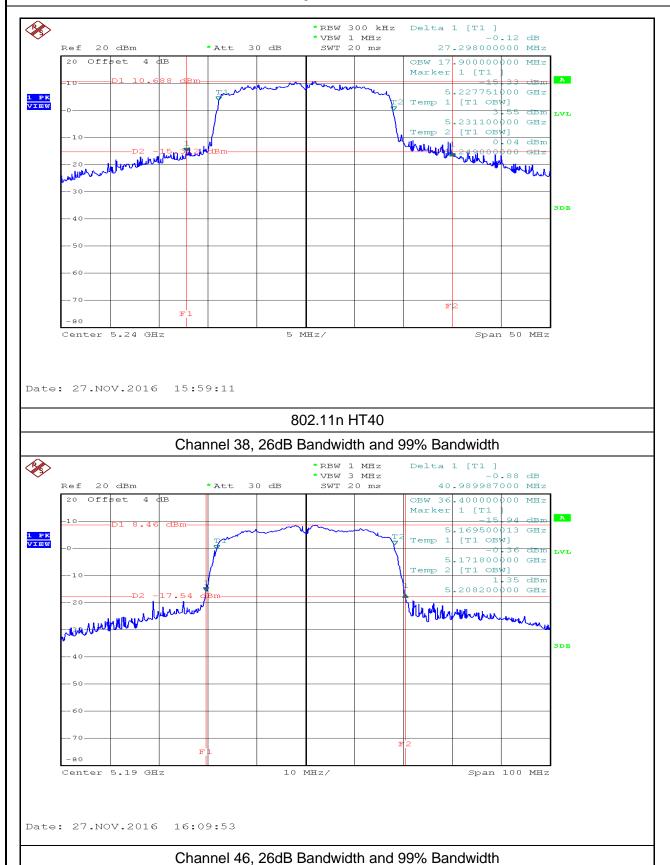
Channel 48, 26dB Bandwidth and 99% Bandwidth

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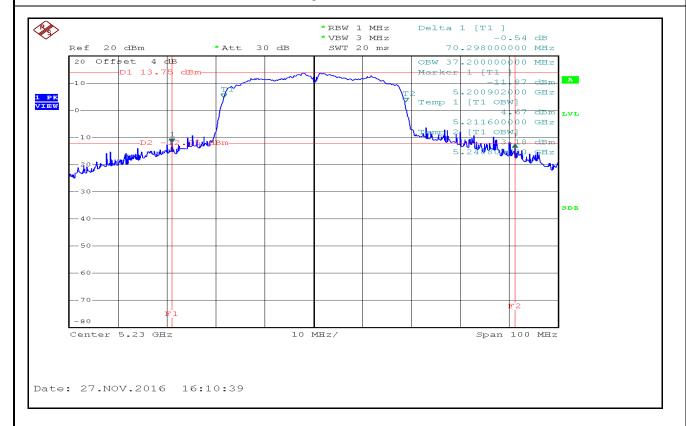


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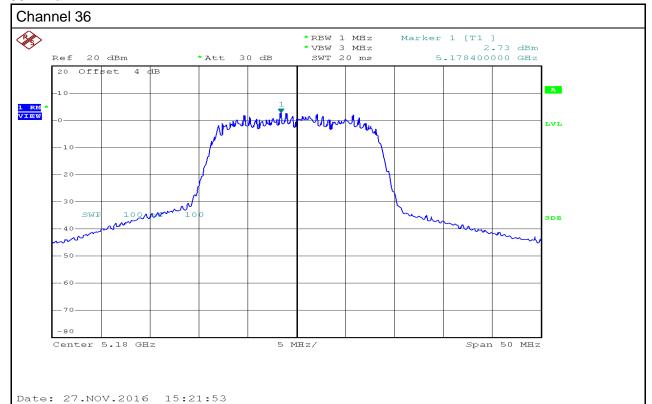
50062633 002



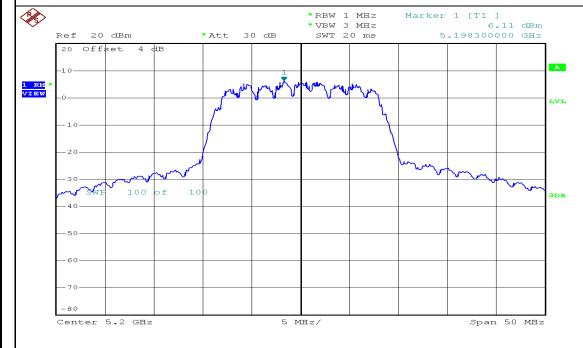
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Appendix A.3: Power Spectral Density, U-NII-1 Band 802.11a



Channel 40



Date: 27.NOV.2016 15:26:31

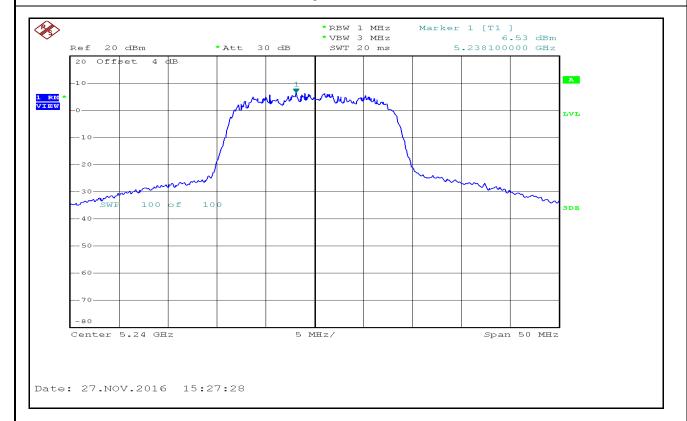
Channel 48

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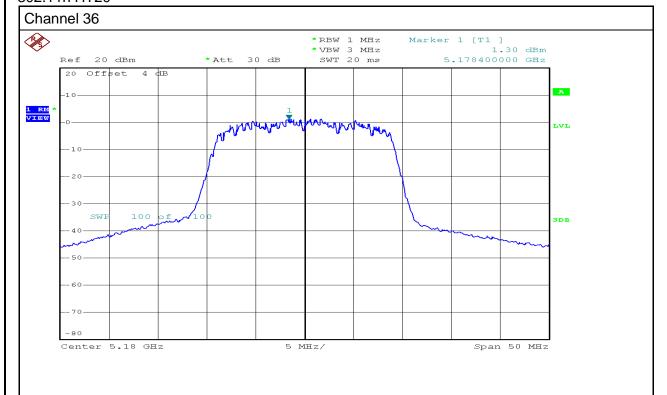
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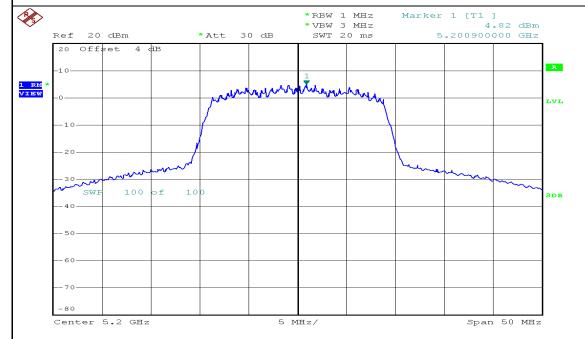
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802.11n HT20



Date: 27.Nov.2016 15:57:19

Channel 40



Date: 9.MAR.2017 13:37:14

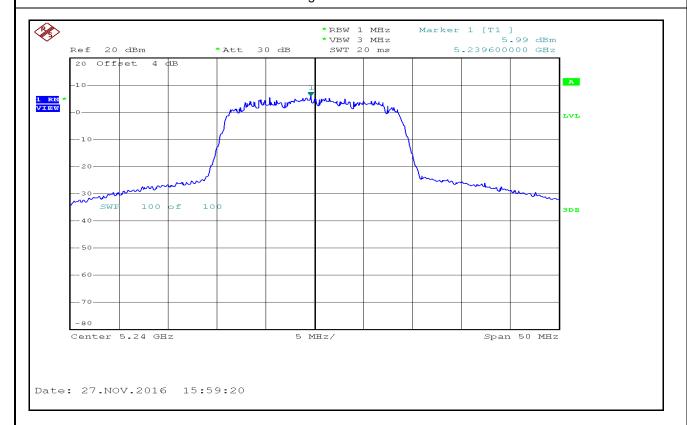
Channel 48

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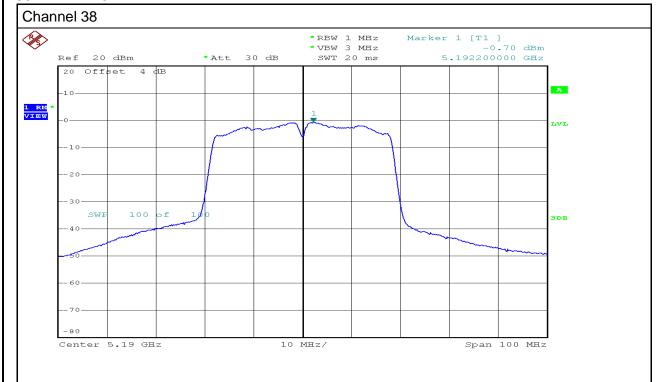
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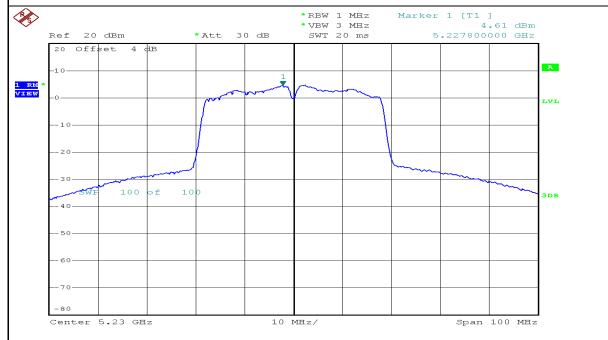
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802.11n HT40



Date: 27.NOV.2016 16:10:06

Channel 46



Date: 27.NOV.2016 16:10:51

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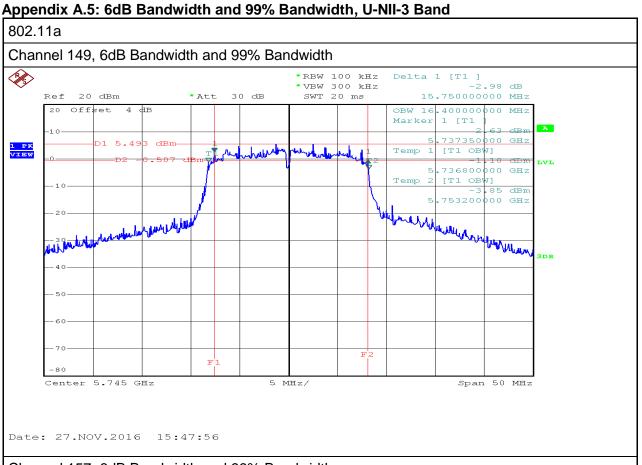
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Appendix A.4: Maximum Conducted Output Power, U-NII-3 Band

1TX	Measur	ed Powe	r (dBm)	Tota	Power (d	dBm)	Limit	Verdict
Channel	Ch 149	Ch 157	Ch 165	Ch 149	Ch 157	Ch 165	(dBm)	verdict
802.11a_6Mbp s	16.18	15.93	15.84	16.51	16.26	16.17	30.00	PASS
802.11n_HT20 _MCS0	16.02	15.86	15.71	16.35	16.19	16.04	30.00	PASS
Channel	Ch151	Ch 159		Ch151	Ch 159	-	Limit (dBm)	Verdict
802.11n_HT40 _MCS0	16.27	16.04		16.73	16.50		30.00	PASS



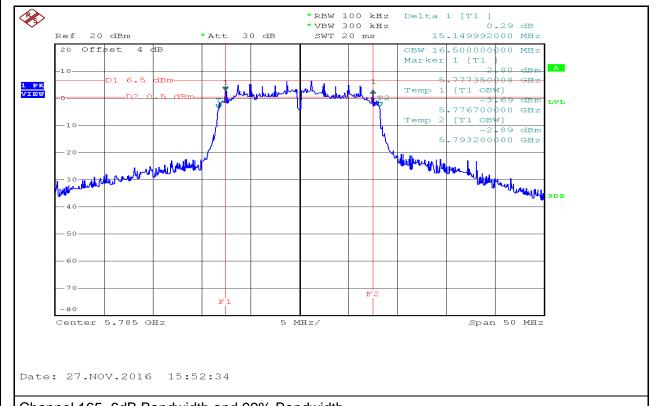
Channel 157, 6dB Bandwidth and 99% Bandwidth

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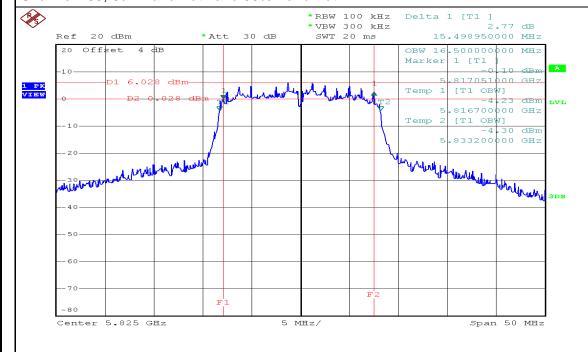
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Channel 165, 6dB Bandwidth and 99% Bandwidth



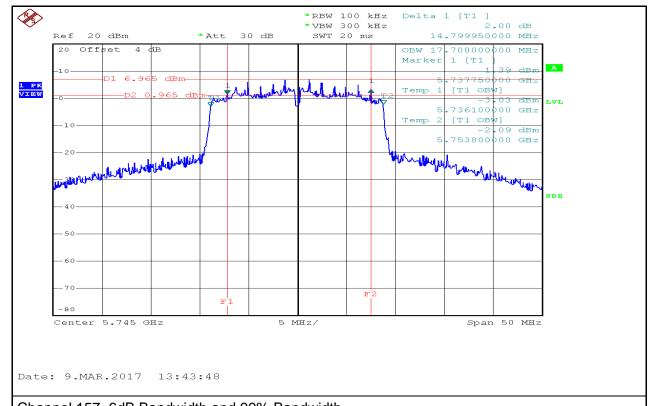
Date: 27.NOV.2016 15:53:43

802.11n HT20

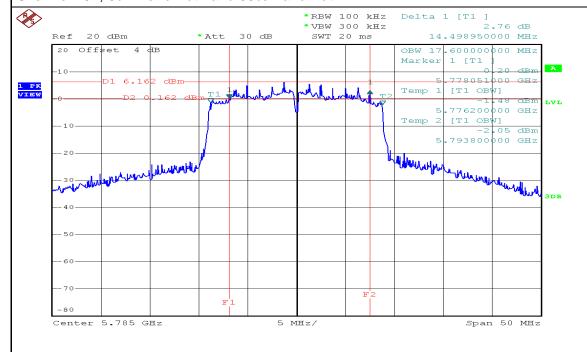
Channel 149, 6dB Bandwidth and 99% Bandwidth

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Channel 157, 6dB Bandwidth and 99% Bandwidth



Date: 27.NOV.2016 16:06:47

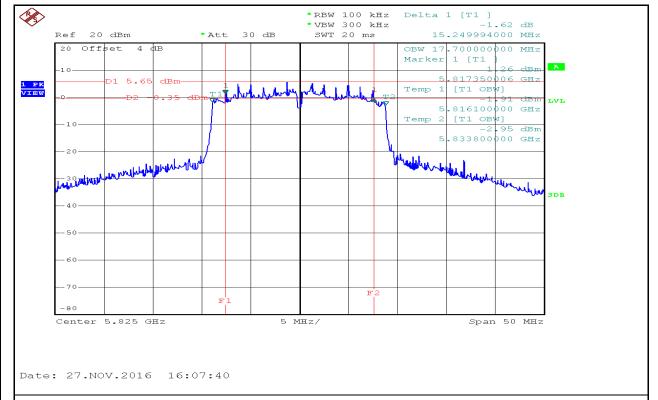
Channel 165, 6dB Bandwidth and 99% Bandwidth

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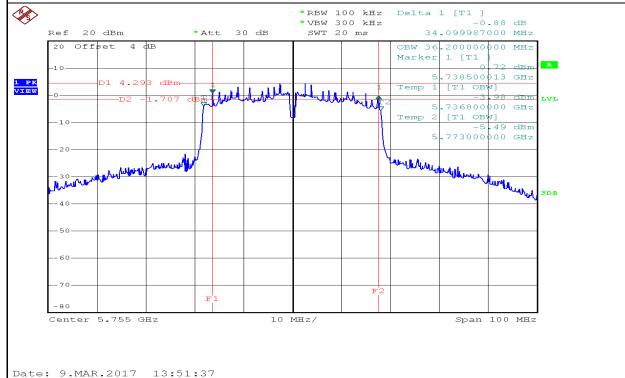
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802.11n HT40

Channel 151, 6dB Bandwidth and 99% Bandwidth



Date: 9:MAN:2017 13:31:37

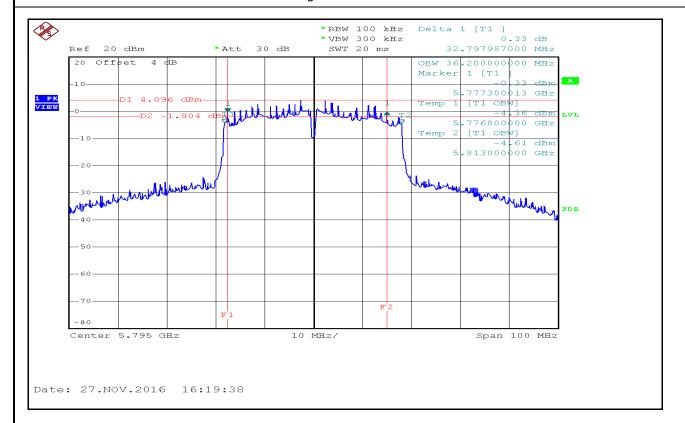
Channel 159, 99% Bandwidth and 99% Bandwidth

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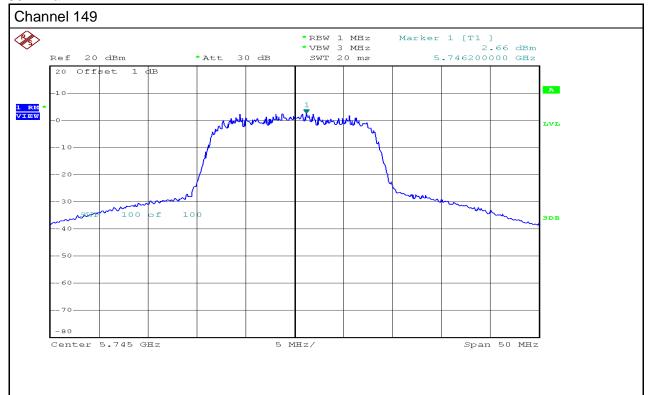
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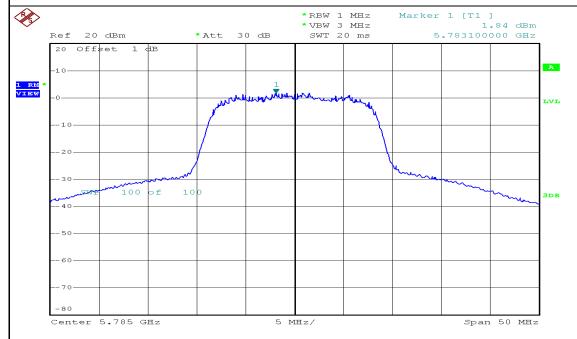
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Appendix A.6: Power Spectral Density, U-NII-3 Band 802.11a



Date: 27.NOV.2016 15:47:23

Channel 157



Date: 27.NOV.2016 15:52:43

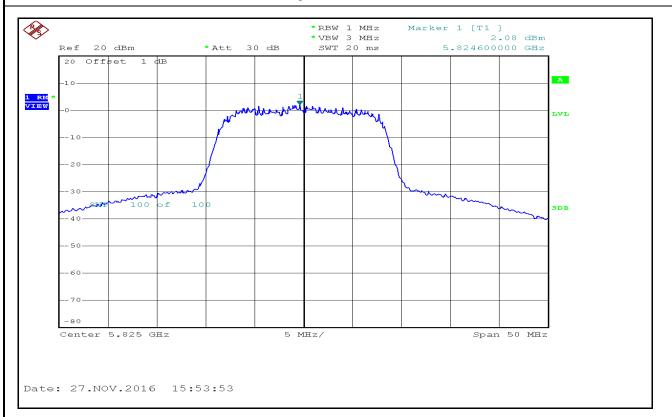
Channel 165

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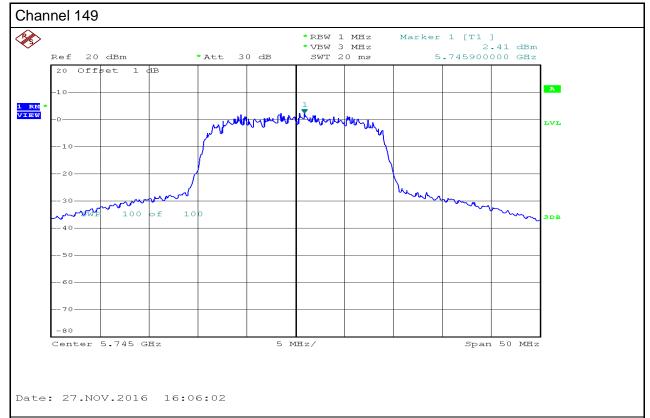
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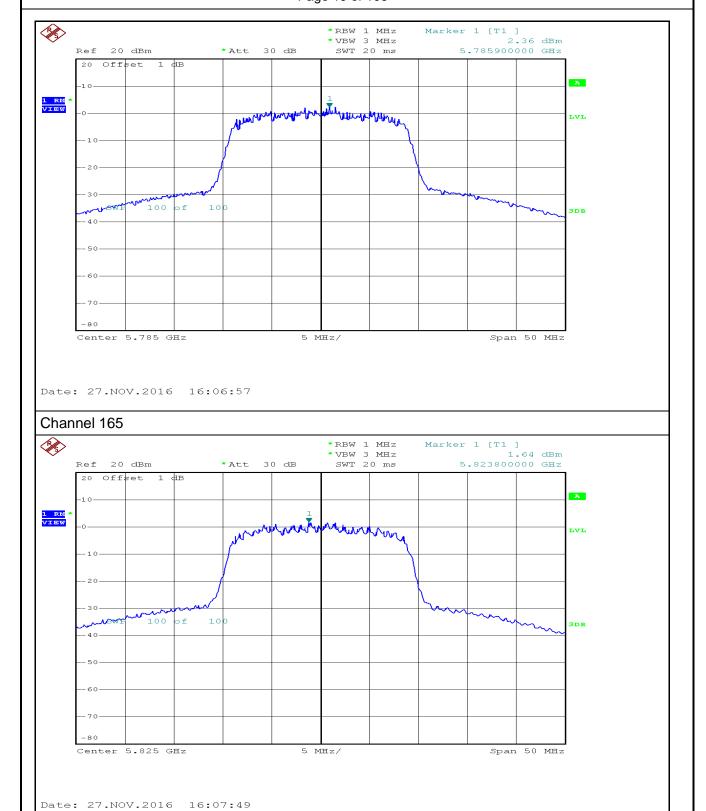
802.11n HT20

Channel 157



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802.11n HT40

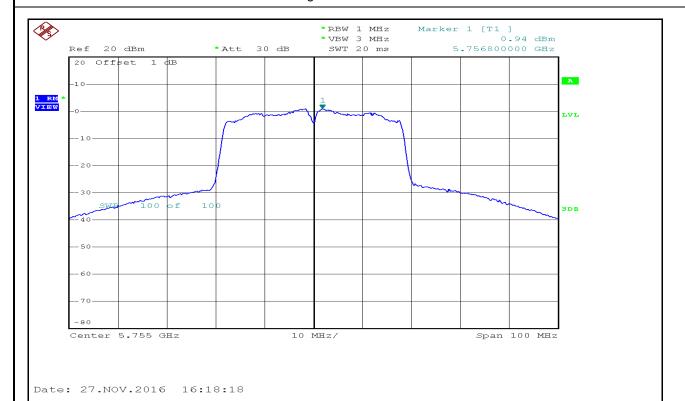
Channel 151

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Channel 159



Date: 27.NOV.2016 16:19:50



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Appendix A.7: Unwanted Emissions - Outside of the Restriced Bands, below 30 MHz



No.3.JinShaGang 1st Road,ShiXia,DaLang Town,DongGuan,China. Tel: (0769)-8318-3000 Fax:(0769)-8319-6000 Post Code: 523792 www.newbtl.com

Limit: FCC 15.209_3m(QP&AVG)_new

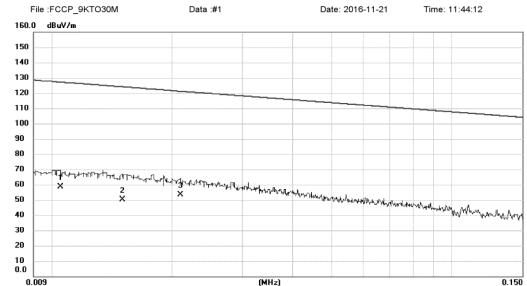
Polarization: Power: DC 5V Temperature: Humidity: 60 %

EUT: Swann Wireless HD Smart Security Camera M/N: SWWHD-INTCAM

Distance: 3m Mode: TX_0_1

Note:

Radiated Emission Measurement



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.011	34.50	24.09	58.59	127.18	-68.59	AVG	
2	0.015	26.41	23.82	50.23	124.08	-73.85	AVG	
3 *	0.021	29.81	23.40	53.21	121.16	-67.95	AVG	

Reference Only *:Maximum data x:Over limit !:over margin

File:FCCP_9KTO30M\Data:#1 Test engineer: BIAO Page: 1

50062633 002

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Site: DG-CB01

No.3.JinShaGang 1st Road,ShiXia,DaLang Town,DongGuan,China. Tel: (0769)-8318-3000 Fax:(0769)-8319-6000 Post Code: 523792 www.newbtl.com

Polarization:

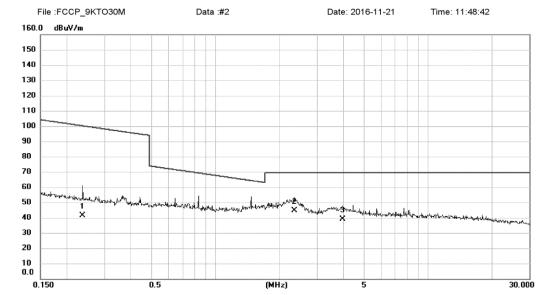
Humidity: 60 %

BIAO

Limit: FCC 15.209_3m(QP&AVG)_new Power: DC 5V
EUT: Swann Wireless HD Smart Security Camera Distance: 3m
M/N: SWWHD-INTCAM Mode: TX_0_2

Note:

Radiated Emission Measurement



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.237	22.60	18.66	41.26	100.13	-58.87	AVG	
2 *	2.346	27.20	17.46	44.66	69.54	-24.88	QP	
3	3.964	20.50	18.67	39.17	69.54	-30.37	QP	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only} \)

File:FCCP_9KTO30M\Data:#2 Page: 1 Test engineer:

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 $No. 3. Jin Sha Gang\ 1st\ Road, Shi Xia, Da Lang\ Town, Dong Guan, China.$ Tel: (0769)-8318-3000 Fax:(0769)-8319-6000 Post Code: 523792 www.newbtl.com

Site: DG-CB01 Limit: FCC 15.209_3m(QP&AVG)_new

Polarization: Power: DC 5V Distance: 3m

Temperature: Humidity: 60 %

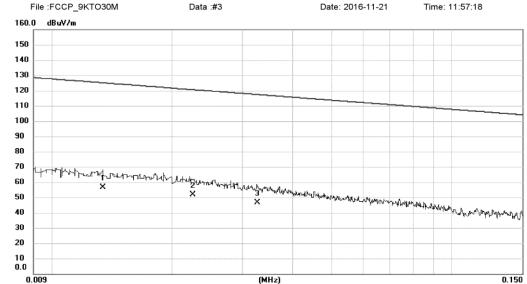
EUT: Swann Wireless HD Smart Security Camera M/N: SWWHD-INTCAM

Mode: TX_90_1

Radiated Emission Measurement

Note:

Date: 2016-11-21 Data:#3



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	0.013	32.80	23.92	56.72	125.06	-68.34	AVG	
2	0.022	28.50	23.21	51.71	120.56	-68.85	AVG	
3	0.033	24.78	21.97	46.75	117.34	-70.59	AVG	

*:Maximum data x:Over limit !:over margin (Reference Only

File: FCCP_9KTO30M\Data:#3

Page: 1

Test engineer :

BIAO

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BTL Inc. T

No.3.JinShaGang 1st Road,ShiXia,DaLang Town,DongGuan,China. Tel: (0769)-8318-3000 Fax:(0769)-8319-6000 Post Code: 523792 www.newbtl.com



Limit: FCC 15.209_3m(QP&AVG)_new

EUT: Swann Wireless HD Smart Security Camera

EUT: Swann Wireless HD Smart Security Camer M/N: SWWHD-INTCAM

Note:

Polarization: Temperature: 25 (0 Power: DC 5V Humidity: 60 %

Distance: 3m Mode: TX_90_2

Radiated Emission Measurement

File:FCCP_9KTO30M	Data :#4	Date: 2016-11-21	Time: 11:53:15
60.0 dBuV/m			
50			
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No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.181	24.50	18.71	43.21	102.43	-59.22	AVG	
2	1.970	21.70	17.89	39.59	69.54	-29.95	QP	
3 *	2.297	24.80	17.52	42.32	69.54	-27.22	QP	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only}

File: FCCP_9KTO30M\Data:#4

Page: 1

Test engineer :

BIAO



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Appendix A.8: Unwanted Emissions - Outside of the Restriced Bands, below 1 GHz



Neutron Engineering Inc.

No.3.JinShaGang 1st Road, ShiXia, DaLang Town, DongGuan, China. Tel: (0769)-8318-3000 Fax: (0769)-8319-6000 Post Code: 523792

Polarization: Vertical Power: DC 5V

Temperature: Humidity: 60 %

Limit: FCC Class B 3m Radiation

Distance: 3m

EUT: Swann Wireless HD Smart Security Camera M/N: SWWHD-INTCAM

Mode: TX_A_5180

Note:

Radiated Emission Measurement Data :#1 Date: 2016-11-20 File:FCCP_BELOW1G_1 Time: 11:08:45 80.0 dBuV/m 70 60 50 40 30 20 10 224.00 515.00 612.00 806.00 1000.00 MHz 30.000 127.00 321.00 418.00 709.00

No. N	√lk. F	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143	3.975	34.20	-13.43	20.77	43.50	-22.73	peak	
2	233	3.215	46.45	-13.50	32.95	46.00	-13.05	peak	
3	299	9.660	36.60	-10.19	26.41	46.00	-19.59	peak	
4 *	471	1.350	43.78	-8.74	35.04	46.00	-10.96	peak	
5	539	9.735	33.26	-5.60	27.66	46.00	-18.34	peak	
6	798	3.240	32.31	0.18	32.49	46.00	-13.51	peak	

(Reference Only *:Maximum data x:Over limit !:over margin

File:FCCP_BELOW1G_1\Data:#1

Page: 1

Test engineer:

50062633 002



Temperature:

Humidity: 60 %

Produkte Products

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BTL Inc.

Neutron Engineering Inc.

No.3.JinShaGang 1st Road,ShiXia,DaLang Town,DongGuan,China. Tel: (0769)-8318-3000 Fax: (0769)-8319-6000 Post Code: 523792 3

Site: DG-CB03

Limit: FCC Class B 3m Radiation

EUT: Swann Wireless HD Smart Security Camera M/N: SWWHD-INTCAM

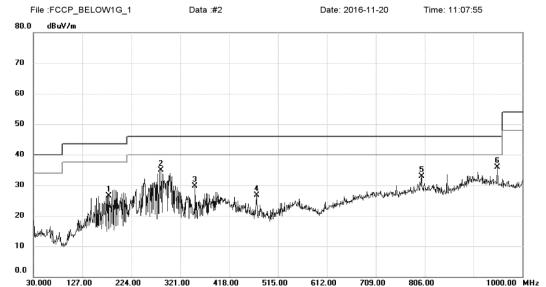
Note:

Polarization: Horizontal

Power: DC 5V

Distance: 3m Mode: TX_A_5180

Radiated Emission Measurement



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	179.380	39.31	-12.80	26.51	43.50	-16.99	peak	
2	283.170	46.69	-11.78	34.91	46.00	-11.09	peak	
3	350.100	40.86	-11.21	29.65	46.00	-16.35	peak	
4	473.290	35.47	-8.80	26.67	46.00	-19.33	peak	
5	799.695	32.59	0.25	32.84	46.00	-13.16	peak	
6 *	950.045	33.41	2.45	35.86	46.00	-10.14	peak	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only} \)

File:FCCP_BELOW1G_1\Data:#2

Page: 1

Test engineer :

50062633 002



Produkte Products

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BTL Inc. do the best

224.00

30.000

127.00

321.00

418.00

Neutron Engineering Inc.

No.3.JinShaGang 1st Road, ShiXia, DaLang Town, DongGuan, China. Fax: (0769)-8319-6000 Post Code: 523792 Tel: (0769)-8318-3000

Site: DG-CB03

Limit: FCC Class B 3m Radiation. EUT: Swann Wireless HD Smart Security Camera Polarization: Vertical Power: DC 5V Distance: 3m

Mode: TX_A_5200

Temperature: Humidity: 60 %

M/N: SWWHD-INTCAM

Note:

Radiated Emission Measurement Date: 2016-11-20 File:FCCP_BELOW1G_1 Data :#3 Time: 11:09:17 80.0 dBuV/m 70 60 50 30 20 10 0.0

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143.975	35.80	-13.43	22.37	43.50	-21.13	peak	
2	233.215	45.88	-13.50	32.38	46.00	-13.62	peak	
3	298.690	36.18	-10.30	25.88	46.00	-20.12	peak	
4 *	473.290	42.27	-8.80	33.47	46.00	-12.53	peak	
5	537.795	33.17	-5.80	27.37	46.00	-18.63	peak	
6	798.240	30.17	0.18	30.35	46.00	-15.65	peak	

515.00

612.00

709.00

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_BELOW1G_1\Data:#3

Page: 1

Test engineer:

806.00

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1000.00 MHz

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Produkte Products **50062633 002** Page 28 of 106



Neutron Engineering Inc.

No.3.JinShaGang 1st Road,ShiXia,DaLang Town,DongGuan,China. Tel: (0769)-8318-3000 Fax: (0769)-8319-6000 Post Code: 523792

Polarization: Horizontal

3

Site: DG-CB03 Limit: FCC Class B 3m Radiation

3m Radiation Power: DC 5V

Temperature: 25 Humidity: 60 %

EUT: Swann Wireless HD Smart Security Camera

BTL Inc.

do the best

Distance: 3m Mode: TX_A_5200

M/N: SWWHD-INTCAM

Note:

Radiated Emission Measurement Date: 2016-11-20 File:FCCP_BELOW1G_1 Data:#4 Time: 11:07:21 80.0 dBuV/m 70 60 50 30 20 10 0.0 806.00 1000.00 MHz 224.00 321.00 418.00 515.00 612.00 709.00 30.000 127.00

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143.975	39.54	-13.43	26.11	43.50	-17.39	peak	
2	176.470	39.17	-12.62	26.55	43.50	-16.95	peak	
3 *	283.170	47.40	-11.78	35.62	46.00	-10.38	peak	
4	471.835	34.94	-8.75	26.19	46.00	-19.81	peak	
5	799.695	31.89	0.25	32.14	46.00	-13.86	peak	
6	890.875	32.06	1.93	33.99	46.00	-12.01	peak	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only} \)

File:FCCP_BELOW1G_1\Data:#4

Page: 1

Test engineer :

50062633 002



Temperature:

Humidity: 60 %

Produkte Products

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BTL Inc. do the bast

Neutron Engineering Inc.

No.3.JinShaGang 1st Road, ShiXia, DaLang Town, DongGuan, China. Tel: (0769)-8318-3000 Fax: (0769)-8319-6000 Post Code: 523792

Limit: FCC Class B 3m Radiation

EUT: Swann Wireless HD Smart Security Camera

M/N: SWWHD-INTCAM

Note:

Polarization: Vertical

Power: DC 5V

Distance: 3m

Mode: TX_A_5240

Radiated Emission M	Measurement
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No. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143.975	35.17	-13.43	21.74	43.50	-21.76	peak	
2	233.215	45.79	-13.50	32.29	46.00	-13.71	peak	
3	300.145	35.89	-10.16	25.73	46.00	-20.27	peak	
4 *	473.290	44.20	-8.80	35.40	46.00	-10.60	peak	
5	543.130	33.02	-5.25	27.77	46.00	-18.23	peak	
6	749.740	32.20	-1.97	30.23	46.00	-15.77	peak	

*:Maximum data Reference Only x:Over limit !:over margin

File:FCCP_BELOW1G_1\Data:#5

Page: 1

Test engineer :

50062633 002



Temperature:

Humidity: 60 %

Produkte Products

Page 30 of 106



BTL Inc. do the bast

Neutron Engineering Inc.

No.3.JinShaGang 1st Road, ShiXia, DaLang Town, DongGuan, China. Tel: (0769)-8318-3000 Fax: (0769)-8319-6000 Post Code: 523792

Limit: FCC Class B 3m Radiation

EUT: Swann Wireless HD Smart Security Camera

M/N: SWWHD-INTCAM

Note:

Polarization: Horizontal

Power: DC 5V

Distance: 3m Mode: TX_A_5240

Radiated Emission Measurement

File :FCCP_BELOW1G_1		Data :#6	Date: 2016-11-20	Time: 11:06:48	
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No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143.975	40.30	-13.43	26.87	43.50	-16.63	peak	
2	190.050	43.11	-13.93	29.18	43.50	-14.32	peak	
3	283.170	46.87	-11.78	35.09	46.00	-10.91	peak	
4	394.235	36.72	-8.18	28.54	46.00	-17.46	peak	
5	551.375	29.00	-4.61	24.39	46.00	-21.61	peak	
6 *	950.045	33.70	2.45	36.15	46.00	-9.85	peak	

*:Maximum data Reference Only x:Over limit !:over margin

File:FCCP_BELOW1G_1\Data:#6

Page: 1

Test engineer :

50062633 002



Produkte Products

Page 31 of 106



BTL Inc. do the bast

Neutron Engineering Inc.

No.3.JinShaGang 1st Road, ShiXia, DaLang Town, DongGuan, China. Tel: (0769)-8318-3000 Fax: (0769)-8319-6000 Post Code: 523792

Limit: FCC Class B 3m Radiation

EUT: Swann Wireless HD Smart Security Camera

M/N: SWWHD-INTCAM

Note:

Polarization: Vertical Temperature:

Power: DC 5V Humidity: 60 %

Distance: 3m Mode: TX_A_5745

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File :FCCP_BELOW1G_1			Data :#1	9		Date: 2016-11	-20	Time: 11:18:03	
80.0 	dBuV/m								
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No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	129.910	32.09	-12.36	19.73	43.50	-23.77	peak	
2	232.245	45.51	-13.46	32.05	46.00	-13.95	peak	
3	299.660	36.12	-10.19	25.93	46.00	-20.07	peak	
4 *	472.320	41.05	-8.77	32.28	46.00	-13.72	peak	
5	549.435	33.03	-4.60	28.43	46.00	-17.57	peak	
6	749.740	32.40	-1.97	30.43	46.00	-15.57	peak	

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_BELOW1G_1\Data:#19

Page: 1

Test engineer :

002



Temperature:

Humidity: 60 %

Produkte Products **50062633 002** Page 32 of 106

STL

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No.3.JinShaGang 1st Road,ShiXia,DaLang Town,DongGuan,China. Tel: (0769)-8318-3000 Fax: (0769)-8319-6000 Post Code: 523792 3

Site: DG-CB03

Limit: FCC Class B 3m Radiation

EUT: Swann Wireless HD Smart Security Camera

M/N: SWWHD-INTCAM

Polarization: Horizontal

Power: DC 5V

Distance: 3m Mode: TX_A_5745

Note:

Radiated Emission Measurement Date: 2016-11-20 File:FCCP_BELOW1G_1 Data :#20 Time: 11:02:31 80.0 dBuV/m 70 60 50 30 20 10 0.0 321.00 612.00 806.00 1000.00 MHz 127.00 224.00 418.00 515.00 709.00 30.000

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143.975	40.30	-13.43	26.87	43.50	-16.63	peak	
2	190.050	42.74	-13.93	28.81	43.50	-14.69	peak	
3 *	279.775	47.00	-12.07	34.93	46.00	-11.07	peak	
4	350.100	40.55	-11.21	29.34	46.00	-16.66	peak	
5	549.920	29.88	-4.55	25.33	46.00	-20.67	peak	
6	796.300	33.11	0.09	33.20	46.00	-12.80	peak	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only} \)

File:FCCP_BELOW1G_1\Data:#20

Page: 1

Test engineer :

50062633 002



Produkte Products

Page 33 of 106



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Neutron Engineering Inc.

No.3.JinShaGang 1st Road, ShiXia, DaLang Town, DongGuan, China. Fax: (0769)-8319-6000 Post Code: 523792 Tel: (0769)-8318-3000

Polarization: Vertical

Mode: TX_A_5785

Site: DG-CB03

Limit: FCC Class B 3m Radiation

Power: DC 5V Distance: 3m

Humidity: 60 %

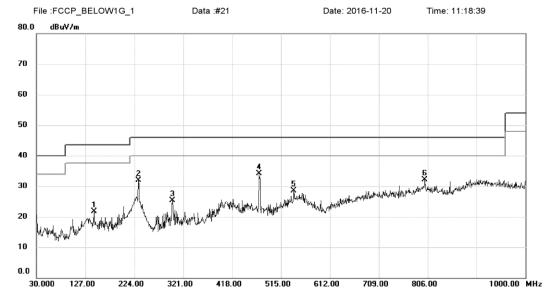
Temperature:

EUT: Swann Wireless HD Smart Security Camera

M/N: SWWHD-INTCAM

Note:

Radiated Emission Measurement Date: 2016-11-20



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143.975	35.09	-13.43	21.66	43.50	-21.84	peak	
2	232.245	45.39	-13.46	31.93	46.00	-14.07	peak	
3	300.145	35.46	-10.16	25.30	46.00	-20.70	peak	
4 *	471.835	42.80	-8.75	34.05	46.00	-11.95	peak	
5	540.705	34.04	-5.51	28.53	46.00	-17.47	peak	
6	800.180	31.76	0.25	32.01	46.00	-13.99	peak	

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_BELOW1G_1\Data:#21

Page: 1

Test engineer:

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Temperature:

Humidity: 60 %

Produkte Products 50062633 002

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Neutron Engineering Inc.

No.3.JinShaGang 1st Road,ShiXia,DaLang Town,DongGuan,China. Tel: (0769)-8318-3000 Fax: (0769)-8319-6000 Post Code: 523792 3

limit: ECC Class B 3m Badiation

Limit: FCC Class B 3m Radiation

EUT: Swann Wireless HD Smart Security Camera

M/N: SWWHD-INTCAM

Note:

Polarization: Horizontal

Power: DC 5V

Distance: 3m Mode: TX_A_5785

Dad: - t - d	C:	Magazzza
Radiated	Emission	Measurement

File :FCCP_BELOW1G_1			l	Data :#22			Date: 2016-11	-20	Time: 11:01:56		
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No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143.975	39.65	-13.43	26.22	43.50	-17.28	peak	
2	190.050	42.87	-13.93	28.94	43.50	-14.56	peak	
3 *	283.170	46.74	-11.78	34.96	46.00	-11.04	peak	
4	350.100	41.14	-11.21	29.93	46.00	-16.07	peak	
5	549.920	30.60	-4.55	26.05	46.00	-19.95	peak	
6	850.135	35.04	-1.24	33.80	46.00	-12.20	peak	

*:Maximum data x:Over limit !:over margin (Reference Only

File:FCCP_BELOW1G_1\Data:#22

Page: 1

Test engineer :

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Produkte Products

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Neutron Engineering Inc.

No.3.JinShaGang 1st Road, ShiXia, DaLang Town, DongGuan, China. Tel: (0769)-8318-3000 Fax: (0769)-8319-6000 Post Code: 523792

Limit: FCC Class B 3m Radiation

EUT: Swann Wireless HD Smart Security Camera

M/N: SWWHD-INTCAM

Note:

Polarization: Vertical Temperature:

Power: DC 5V Humidity: 60 %

Distance: 3m Mode: TX_A_5825

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No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143.975	34.35	-13.43	20.92	43.50	-22.58	peak	
2	233.215	44.67	-13.50	31.17	46.00	-14.83	peak	
3	299.660	35.72	-10.19	25.53	46.00	-20.47	peak	
4 *	473.290	41.95	-8.80	33.15	46.00	-12.85	peak	
5	539.735	33.43	-5.60	27.83	46.00	-18.17	peak	
6	799.695	32.45	0.25	32.70	46.00	-13.30	peak	

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_BELOW1G_1\Data:#23

Page: 1

Test engineer :

50062633 002



Temperature:

Humidity: 60 %

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Limit: FCC Class B 3m Radiation

EUT: Swann Wireless HD Smart Security Camera

M/N: SWWHD-INTCAM

DG-CB03

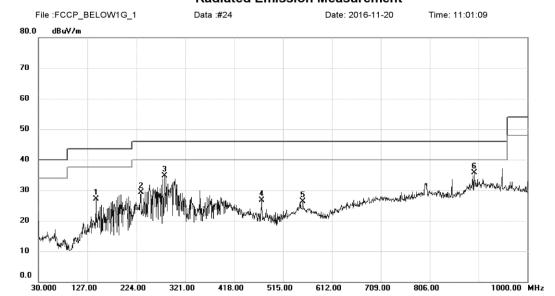
Note:

Polarization: Horizontal

Power: DC 5V Distance: 3m

Mode: TX_A_5825

Radiated	Emission	Measurement
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No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	143.975	40.53	-13.43	27.10	43.50	-16.40	peak	
2	233.215	42.84	-13.50	29.34	46.00	-16.66	peak	
3	279.775	46.73	-12.07	34.66	46.00	-11.34	peak	
4	473.290	35.46	-8.80	26.66	46.00	-19.34	peak	
5	554.285	31.00	-4.75	26.25	46.00	-19.75	peak	
6 *	894.755	33.52	2.23	35.75	46.00	-10.25	peak	

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_BELOW1G_1\Data:#24

Page: 1

Test engineer:



Temperature:

Humidity: 60 %

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Appendix A.9: Unwanted Emissions - Outside of the Restriced Bands, above 1 GHz 802.11a



No.3.JinShaGang 1st Road, ShiXia, DaLang Town, DongGuan, China. Tel: (0769)-8318-3000 Fax:(0769)-8319-6000 Post Code: 523792 www.newbtl.com

Power: DC 5V

Mode: TX_A_5180

Distance: 3m

Polarization: Vertical

Limit: FCC 15.407_3m_(Peak)

EUT: SEE NOTE M/N: SWWHD-INTCAM

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement File:FCCP_ABOVE1G Data :#1 Date: 2016-11-25 Time: 12:40:04 80.0 dBuV/m 70 60 50 40 X 30 20 10 1000.000 4900.00 8800.00 12700.00 16600.00 20500.00 24400.00 28300.00 32200.00 40000.00 MHz

No.	Mk.	. Freq.	Reading Level		Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	3453.205	28.15	1.34	29.49	54.00	-24.51	AVG	
2		3453.245	36.96	1.34	38.30	68.30	-30.00	peak	

*:Maximum data x:Over limit !:over margin Reference Only

File: FCCP_ABOVE1G\Data:#1 Page: 1 Test engineer : Vincent

50062633 002



Temperature:

Humidity: 60 %

Produkte Products

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 $No. 3. Jin Sha Gang\ 1st\ Road, Shi Xia, Da Lang\ Town, Dong Guan, China.$ Tel: (0769)-8318-3000 Fax:(0769)-8319-6000 Post Code: 523792 www.newbtl.com

Polarization: Horizontal



Site: DG-CB03 Limit: FCC 15.407_3m_(Peak)

Power: DC 5V **EUT: SEE NOTE** Distance: 3m M/N: SWWHD-INTCAM Mode: TX_A_5180

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement Data :#2 Date: 2016-11-25 File:FCCP_ABOVE1G Time: 12:08:57 80.0 dBuV/m 70 60 50 40 30 20 10 1000.000 4900.00 12700.00 16600.00 20500.00 24400.00 32200.00 40000.00 MHz 8800.00 28300.00

No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	3	3453.273	38.20	1.34	39.54	68.30	-28.76	peak	
2	* 3	3453.285	32.25	1.34	33.59	54.00	-20.41	AVG	

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_ABOVE1G\Data:#2

Page: 1

Test engineer :

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Temperature:

Humidity: 60 %

Produkte Products

50062633 002

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 $No. 3. Jin Sha Gang\ 1st\ Road, Shi Xia, Da Lang\ Town, Dong Guan, China.$ Tel: (0769)-8318-3000 Fax:(0769)-8319-6000 Post Code: 523792 www.newbtl.com

Power: DC 5V

Polarization: Vertical



Site: DG-CB03

Limit: FCC 15.407_3m_(Peak) **EUT: SEE NOTE**

Distance: 3m M/N: SWWHD-INTCAM Mode: TX_A_5200

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement Data :#3 Date: 2016-11-25 File:FCCP_ABOVE1G Time: 10:00:16 80.0 dBuV/m 70 60 50 2 X 40 30 20 10 0.0 32200.00 8800.00 12700.00 16600.00 20500.00 40000.00 MHz 1000.000 4900.00 24400.00 28300.00

No.	М	1k. F	req.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		ľ	ИНz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	3466	.582	28.04	1.33	29.37	54.00	-24.63	AVG	
2		3466	.865	37.91	1.33	39.24	68.30	-29.06	peak	

*:Maximum data x:Over limit !:over margin Reference Only

File: FCCP_ABOVE1G\Data:#3

Page: 1

Test engineer :

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Temperature:

Humidity: 60 %

Produkte Products

50062633 002

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No.3.JinShaGang 1st Road,ShiXia,DaLang Town,DongGuan,China. Tel: (0769)-8318-3000 Fax:(0769)-8319-6000 Post Code: 523792 www.newbtl.com

Power: DC 5V

Distance: 3m

Polarization: Horizontal



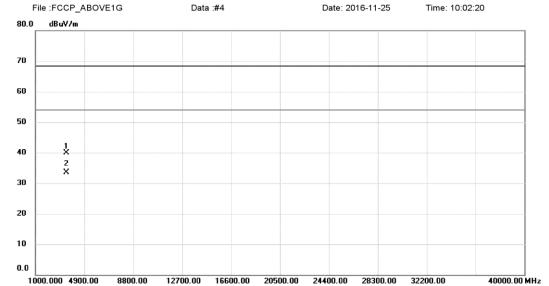
Site: DG-CB03

Limit: FCC 15.407_3m_(Peak)
EUT: SEE NOTE

M/N: SWWHD-INTCAM Mode: TX_A_5200

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		3466.500	38.63	1.33	39.96	68.30	-28.34	peak	
2	*	3466.597	32.16	1.33	33.49	54.00	-20.51	AVG	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only} \)

File :FCCP_ABOVE1G\Data :#4

Page: 1

Test engineer:

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 $No. 3. Jin Sha Gang\ 1st\ Road, Shi Xia, Da Lang\ Town, Dong Guan, China.$ Tel: (0769)-8318-3000 Fax:(0769)-8319-6000 Post Code: 523792 www.newbtl.com

Mode: TX_A_5240



Site: DG-CB03

Limit: FCC 15.407_3m_(Peak) **EUT: SEE NOTE**

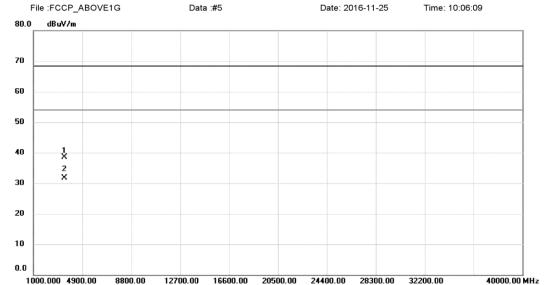
M/N: SWWHD-INTCAM

Note: Swann Wireless HD Smart Security Camera

Polarization: Vertical Temperature: Power: DC 5V Humidity: 60 %

Distance: 3m

Radiated Emission Measurement Date: 2016-11-25



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		3493.258	37.27	1.32	38.59	68.30	-29.71	peak	
2	*	3493.287	30.38	1.32	31.70	54.00	-22.30	AVG	

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_ABOVE1G\Data: #5 Page: 1 Test engineer : Vincent

50062633 002



Temperature:

Humidity: 60 %

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Polarization: Horizontal

Site: DG-CB03 Limit: FCC 15.407_3m_(Peak)

MHz

3493.250

3493.435

1 *

2

dBuV

33.09

38.54

dΒ

1.32

1.32

dBuV/m

34.41

39.86

Power: DC 5V Distance: 3m **EUT: SEE NOTE** M/N: SWWHD-INTCAM Mode: TX_A_5240

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement File:FCCP_ABOVE1G Data:#6 Date: 2016-11-25 Time: 10:04:43 80.0 dBuV/m 70 60 50 40 30 20 10 16600.00 1000.000 4900.00 8800.00 12700.00 32200.00 40000.00 MHz 20500.00 24400.00 28300.00 Correct Reading Measure-Limit No. Mk. Margin Freq. Level Factor ment

dBuV/m

54.00

68.30

dB

-19.59

-28.44

Detector

AVG

peak

Comment

Vincent

*:Maximum data	x:Over limit	!:over margin	(Reference Onli
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File: FCCP_ABOVE1G\Data:#6 Page: 1 Test engineer:

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Mode: TX_A_5745

Site: DG-CB03

Limit: FCC 15.407_3m_(Peak) **EUT: SEE NOTE**

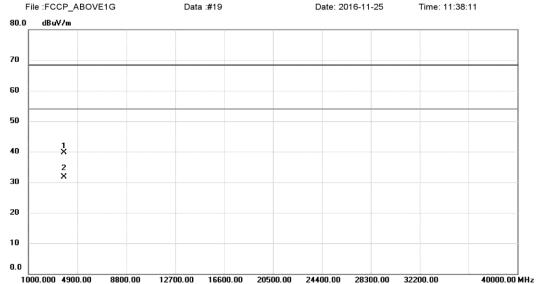
M/N: SWWHD-INTCAM

Note: Swann Wireless HD Smart Security Camera

Polarization: Vertical Temperature:

Power: DC 5V Humidity: 60 % Distance: 3m

Radiated Emission Measurement Data :#19 Date: 2016-11-25



No.	Mk.	Freq.	Reading Level		Measure- ment		Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	3	8829.975	37.23	2.39	39.62	68.30	-28.68	peak	
2	* 3	8830.003	29.40	2.39	31.79	54.00	-22.21	AVG	

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_ABOVE1G\Data:#19

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Test engineer :

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Temperature:

Humidity: 60 %

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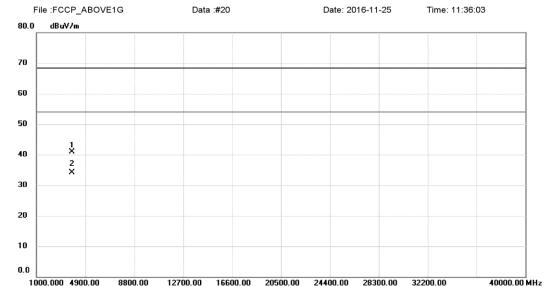
Polarization: Horizontal



Site: DG-CB03 Limit: ECC 15 407 3m (Peak)

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		3830.015	38.54	2.39	40.93	68.30	-27.37	peak	
2	*	3830.025	31.63	2.39	34.02	54.00	-19.98	AVG	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only} \)

File: FCCP_ABOVE1G\Data:#20 Page: 1 Test engineer: Vincent

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Site: DG-CB03 Limit: FCC 15.407_3m_(Peak)

Limit: FCC 15.407_3m_(Peak)
EUT: SEE NOTE

M/N: SWWHD-INTCAM

Polarization: Vertical Temperature:

Power: DC 5V Humidity: 60 % Distance: 3m

Mode: TX_A_5785

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement Data :#21 Date: 2016-11-25 File:FCCP_ABOVE1G Time: 11:40:36 80.0 dBuV/m 70 60 50 40 X 1 X 30 20 10 0.0 8800.00 12700.00 32200.00 40000.00 MHz 1000.000 4900.00 16600.00 20500.00 24400.00 28300.00

No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	3856.650	28.11	2.48	30.59	54.00	-23.41	AVG	
2		3856.725	36.45	2.48	38.93	68.30	-29.37	peak	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only} \)

File: FCCP_ABOVE1G\Data:#21 Page: 1 Test engineer:

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Temperature:

Humidity: 60 %

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Site: DG-CB03

Limit: FCC 15.407_3m_(Peak)
EUT: SEE NOTE

M/N: SWWHD-INTCAM

Note: Swann Wireless HD Smart Security Camera

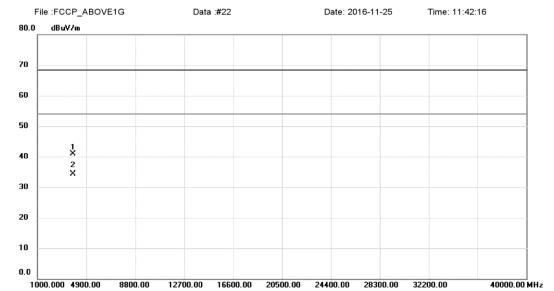
Polarization: Horizontal

Power: DC 5V

Distance: 3m

Mode: TX_A_5785

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		3856.472	38.47	2.48	40.95	68.30	-27.35	peak	
2	*	3856.690	31.84	2.48	34.32	54.00	-19.68	AVG	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only} \)

File: FCCP_ABOVE1G\Data:#22 Page: 1 Test engineer: Vincent

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Products

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Neutron Engineering Inc.

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Site: DG-CB03 Limit: FCC 15.407_3m_(Peak)

Polarization: Vertical Power: DC 5V

Temperature: Humidity: 60 %

EUT: Swann Wireless HD Smart Security Camera

Distance: 3m

M/N: SWWHD-INTCAM

Mode: TX_A_5825

Note:

Radiated Emission Measurement File:FCCP_ABOVE1G Data :#23 Date: 2016-11-25 Time: 11:46:21 80.0 dBuV/m 70 60 50 X 40 2 X 30 20 10 32200.00 40000.00 MHz 1000.000 4900.00 8800.00 12700.00 16600.00 20500.00 24400.00 28300.00

No.	Mk.	Freq.	Reading Level		Measure- ment		Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	,	3883.227	38.73	2.57	41.30	68.30	-27.00	peak	
2	*	3883.247	31.42	2.57	33.99	54.00	-20.01	AVG	

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_ABOVE1G\Data:#23

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Neutron Engineering Inc.

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Site: DG-CB03 Limit: FCC 15.407_3m_(Peak) Polarization: Horizontal Power: DC 5V

Temperature: Humidity: 60 %

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Distance: 3m

EUT: Swann Wireless HD Smart Security Camera M/N: SWWHD-INTCAM Mode: TX_A_5825

Note:

Radiated Emission Measurement File:FCCP_ABOVE1G Data :#24 Date: 2016-11-25 Time: 11:44:30 80.0 dBuV/m 70 60 50 1 2 X 40 30 20 10 8800.00 32200.00 40000.00 MHz 1000.000 4900.00 12700.00 16600.00 20500.00 24400.00 28300.00

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		3883.142	39.79	2.57	42.36	68.30	-25.94	peak	
2	*	3883.300	33.41	2.57	35.98	54.00	-18.02	AVG	

*:Maximum data Reference Only x:Over limit !:over margin

File: FCCP_ABOVE1G\Data:#24

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802.11n HT20



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Site: DG-CB03

Limit: FCC 15.407_3m_(Peak)

Polarization: *Vertical*Power: DC 5V

Temperature:

Humidity: 60 %

EUT: SEE NOTE

M/N: SWWHD-INTCAM

Distance: 3m Mode: TX N20 51

Mode: TX_N20_5180

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement Data :#23 Date: 2016-11-25 File:FCCP_ABOVE1G Time: 10:22:55 80.0 dBuV/m 70 60 50 40 X 30 20 10 1000.000 4900.00 8800.00 12700.00 16600.00 20500.00 24400.00 28300.00 32200.00 40000.00 MHz

No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		3453.300	37.15	1.34	38.49	68.30	-29.81	peak	
2	*	3453.358	30.33	1.34	31.67	54.00	-22.33	AVG	

*:Maximum data x:Over limit !:over margin (Reference Only

Page: 1

File :FCCP_ABOVE1G\Data :#23

Test engineer :



Temperature:

Humidity: 60 %

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Site: DG-CB03

Limit: FCC 15.407_3m_(Peak) **EUT: SEE NOTE**

M/N: SWWHD-INTCAM

Polarization: Horizontal Power: DC 5V

Distance: 3m

Mode: TX_N20_5180

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement Data :#24 Date: 2016-11-25 File:FCCP_ABOVE1G Time: 10:20:50 80.0 dBuV/m 70 60 50 2 X 40 30 20 10 1000.000 4900.00 12700.00 16600.00 20500.00 24400.00 28300.00 32200.00 40000.00 MHz 8800.00

	No.	Mk	. Freq.	Reading Level	Factor	Measure- ment	Limit	Margin		
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	*	3453.290	32.42	1.34	33.76	54.00	-20.24	AVG	
	2		3453.485	38.86	1.34	40.20	68.30	-28.10	peak	
_										

*:Maximum data Reference Only x:Over limit !:over margin

File:FCCP_ABOVE1G\Data:#24 Page: 1 Test engineer :



Temperature:

Humidity: 60 %

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Site: DG-CB03

Limit: FCC 15.407_3m_(Peak) **EUT: SEE NOTE**

M/N: SWWHD-INTCAM

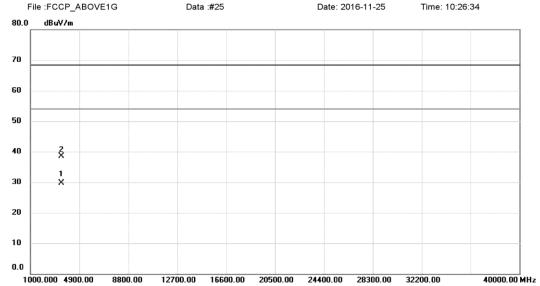
Note: Swann Wireless HD Smart Security Camera

Polarization: Vertical

Power: DC 5V Distance: 3m

Mode: TX_N20_5200

Radiated Emission	Measurement
Data :#25	Date: 2016-11-25



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	3466.675	28.41	1.33	29.74	54.00	-24.26	AVG	
2		3466.823	37.21	1.33	38.54	68.30	-29.76	peak	

*:Maximum data x:Over limit !:over margin Reference Only

Test engineer :

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File:FCCP_ABOVE1G\Data:#25 Page: 1

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Power: DC 5V

Distance: 3m

Site: DG-CB03

Limit: FCC 15.407_3m_(Peak) **EUT: SEE NOTE**

M/N: SWWHD-INTCAM

Note: Swann Wireless HD Smart Security Camera

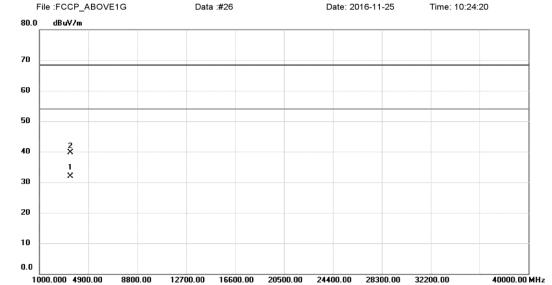
Polarization: Horizontal

Temperature:

Humidity: 60 %

Mode: TX_N20_5200

Radiated	Emission	Measurement



No.	М	lk. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	3466.625	30.58	1.33	31.91	54.00	-22.09	AVG	
2		3466.815	38.37	1.33	39.70	68.30	-28.60	peak	

*:Maximum data Reference Only x:Over limit !:over margin

File:FCCP_ABOVE1G\Data:#26

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Temperature:

Humidity: 60 %

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Site: DG-CB03

Limit: FCC 15.407_3m_(Peak)

EUT: SEE NOTE

M/N: SWWHD-INTCAM

Polarization: Vertical
Power: DC 5V

Distance: 3m

Mode: TX_N20_5240

Note: Swann Wireless HD Smart Security Camera

Radiated Emission Measurement Data :#27 Date: 2016-11-25 File:FCCP_ABOVE1G Time: 10:28:59 80.0 dBuV/m 70 60 50 40 ž 30 20 10 0.0 32200.00 8800.00 12700.00 20500.00 40000.00 MHz 1000.000 4900.00 16600.00 24400.00 28300.00

No.	V	1k.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	34	93.350	28.14	1.32	29.46	54.00	-24.54	AVG	
2		34	93.443	37.30	1.32	38.62	68.30	-29.68	peak	

*:Maximum data x:Over limit !:over margin \(\text{Reference Only} \)

File: FCCP_ABOVE1G\Data: #27 Page: 1 Test engineer: